

2015 PROGRAM 42nd CRS Annual Meeting & Exposition

CREATING VALUE
THROUGH
**CUSTOMISED
DELIVERY**

July 26–29, 2015 ► Edinburgh, Scotland



Download the CRS
Annual Meeting App

Access the Meeting Anytime, Anywhere

2015 CRS Annual Meeting App

- Program Schedule
- Abstracts
- CRS Connect
- Exhibit Listing
- Personal Schedule & To-do List
- Local Edinburgh Attractions, Restaurants & More!

Download Now. It's Fast and Easy.

Search "CRS Meeting" in your app store.
Or access the desktop version:
mobileapp.controlledrelease.org

When accessing the app for the first time you will have the option to set a password. If you choose not to set a password, no password will be needed to access your app.

WiFi access in the conference centre:
Username: delegate
Password: exchange



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2015 Annual Meeting Program Team



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Deputy Chair
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*Purdue University,
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Ilva Rupenthal
*University of
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Ron Smith
*Merck &
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U.S.A.*

General Meeting Information

Share Your Photos & Experiences



#CRSMeeting

Registration

The Registration Desk and self-serve kiosks are located in Strathblane Hall on Level 0. You can modify your registration and print your badges at the self-serve kiosks. Name badges can only be printed at the kiosk one time. CRS staff will be available at the Registration Desk.

Registration Hours

Saturday, July 25	7:30 a.m. – 5:00 p.m.
Sunday, July 26	7:30 a.m. – 7:30 p.m.
Monday, July 27	7:00 a.m. – 5:00 p.m.
Tuesday, July 28	7:00 a.m. – 5:00 p.m.
Wednesday, July 29	7:30 a.m. – 12:00 p.m.

**Your CRS name badge must be worn at all times in the conference centre.*

Access the Abstracts

CRS Annual Meeting abstracts can easily be accessed using the **CRS Annual Meeting app** and the CRS website. Within the app click on the Posters icon to begin viewing poster abstracts, and view podium abstracts directly from the schedule. Sign into the **CRS website** to view and search the abstracts, available to all registered attendees.

CRS Annual Meeting App



View the program, read the abstracts, create your personal schedule and to-do lists, receive announcements, connect with fellow attendees using CRS Connect, and see what companies are in the Exhibit Hall. Download the CRS 2015

app by searching for “CRS Meeting” in the iTunes Store or Google Play. Reach the app from your BlackBerry or laptop via the app website: mobileapp.controlledrelease.org

CRS Connect



CRS Connect allows you to network one-to-one with colleagues while in Edinburgh. Select the CRS Connect icon in the meeting app and search through the database of meeting attendees. Click on an attendee's name to either send them a private message or request an appointment. CRS Connect maintains your full privacy; personal contact information is never shared.

WiFi Access

Wireless internet is available throughout the conference centre for the duration of the meeting.

- Username: delegate
- Password: Exchange

Exposition Hours and Location

The Exposition is located in the Lennox Suite on Level –2. The scheduled Exposition activities are as follows:

Set-Up

Saturday, July 25 8:00 a.m. – 5:00 p.m.	Sunday, July 26 8:00 a.m. – 2:00 p.m.
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Exposition Open

Sunday, July 26 5:30 – 7:30 p.m.	Exposition Grand Opening & Welcome Reception
Monday, July 27 9:30 – 10:30 a.m. 12:00 – 1:00 p.m. 4:30 – 5:30 p.m.	Exposition Hall Open Exposition Hall Open (lunch available for purchase) Exposition Hall Happy Hour
Tuesday, July 28 9:30 – 10:30 a.m. 12:00 – 1:30 p.m. 3:00 – 4:30 p.m.	Exposition Hall Open Exposition Hall Open (lunch available for purchase) Exposition Hall Open

Take-Down

Tuesday, July 28 4:30 – 6:30 p.m.	Exhibit Take-Down
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Poster Sessions

The posters are located in Cromdale Hall on Level –2. Posters will be on display during two poster sessions. Poster authors will be present during one of four time slots. All posters must be removed during Poster Take-Down or they will be removed and discarded. The poster viewing area will be secured overnight. Photographing posters is not permitted.

2015 Poster Schedule

Poster Session I

Sunday, July 26 1:00 – 4:00 p.m.	Poster Session I Set-Up
Monday, July 27 9:30 – 10:30 a.m. 9:30 a.m. – 6:00 p.m. 5:00 – 6:00 p.m. 6:00 – 6:30 p.m.	Poster Session I Authors Present – Group A (odd-numbered poster boards) Poster Session I Viewing Hours Poster Session I Authors Present – Group B (even-numbered poster boards) Poster Session I Take-Down

Poster Session II

Tuesday, July 28 7:00 – 8:00 a.m. 9:30 – 10:30 a.m. 9:30 a.m. – 4:30 p.m. 3:30 – 4:30 p.m. 4:30 – 5:00 p.m.	Poster Session II Set-Up Poster Session II Authors Present – Group C (odd-numbered poster boards) Poster Session II Viewing Hours Poster Session II Authors Present – Group D (even-numbered poster boards) Poster Session II Take-Down
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Poster Snapshots

Poster Snapshots are three-minute audio recordings that provide a summary preview of poster content. You can listen to a recording at any time, including prior to attending the poster sessions and even while standing in front of a poster. Poster Snapshots are submitted by poster presenters and are available through the CRS Annual Meeting app.

Speaker Preparation Room

Conference Organiser's Room - Level -1

The Speaker Preparation Room is available for PowerPoint previewing and downloading presentation materials. Speakers are to upload presentations one day prior to their presentation date (e.g., if you speak on Monday, July 27, you will upload your presentation on Sunday, July 26). Presenters are not allowed to use their own laptops to give their presentations.

The Speaker Preparation Room will be staffed and open as follows:

Saturday, July 25	7:30 a.m. – 5:00 p.m. Sunday speakers upload presentations
Sunday, July 26	7:30 a.m. – 5:00 p.m. Monday speakers upload presentations
Monday, July 27	7:00 a.m. – 5:00 p.m. Tuesday speakers upload presentations
Tuesday, July 28	7:00 a.m. – 5:00 p.m. Wednesday speakers upload presentations

Exposition Hall Cash & Carry Lunch

Network with exhibitors and colleagues during the noon-hour break. Lunch will be available for purchase on Monday from 12:00 – 1:00 p.m. and Tuesday from 12:00 – 1:30 p.m. outside of the Exposition Hall. Seating is available inside the hall.

Electronic Devices

As a courtesy to other meeting attendees, please turn off or silence all electronic devices during all workshops, sessions, and presentations.

Photography

Photography is not permitted in the session rooms, exhibit hall, or poster sessions.

Photo Release

By virtue of your attendance, you agree to the Controlled Release Society's use of your likeness in promotional media.

Children and the CRS Annual Meeting & Exposition

The CRS Annual Meeting & Exposition is a professional, scientific meeting. CRS does not permit children under the age of 18 to attend the scientific sessions, poster sessions, exposition, and social events. For safety reasons, only registered exhibitors and poster presenters are permitted in the exposition/poster hall during set-up and take-down hours. Children 18+ must register and buy applicable individual tickets if not attending/registering as a student.



*From the Controlled Release Society and the
American Association of Pharmaceutical Scientists*

Formulation, Processing, and Testing of Functionally Coated Multiparticulates Workshop

October 24 • Orlando, Florida, U.S.A.

Held immediately prior to the AAPS Annual Meeting and Exposition

This workshop will:

- Review the advantages of multiparticulate dosage forms in regard to dosing flexibility, i.e., targeted dosing and timed dosing.
- Provide firsthand, practical knowledge about formulation and process development of multiparticulate dosage forms—including beads, pellets, and mini-tablets.

Workshop Organizers

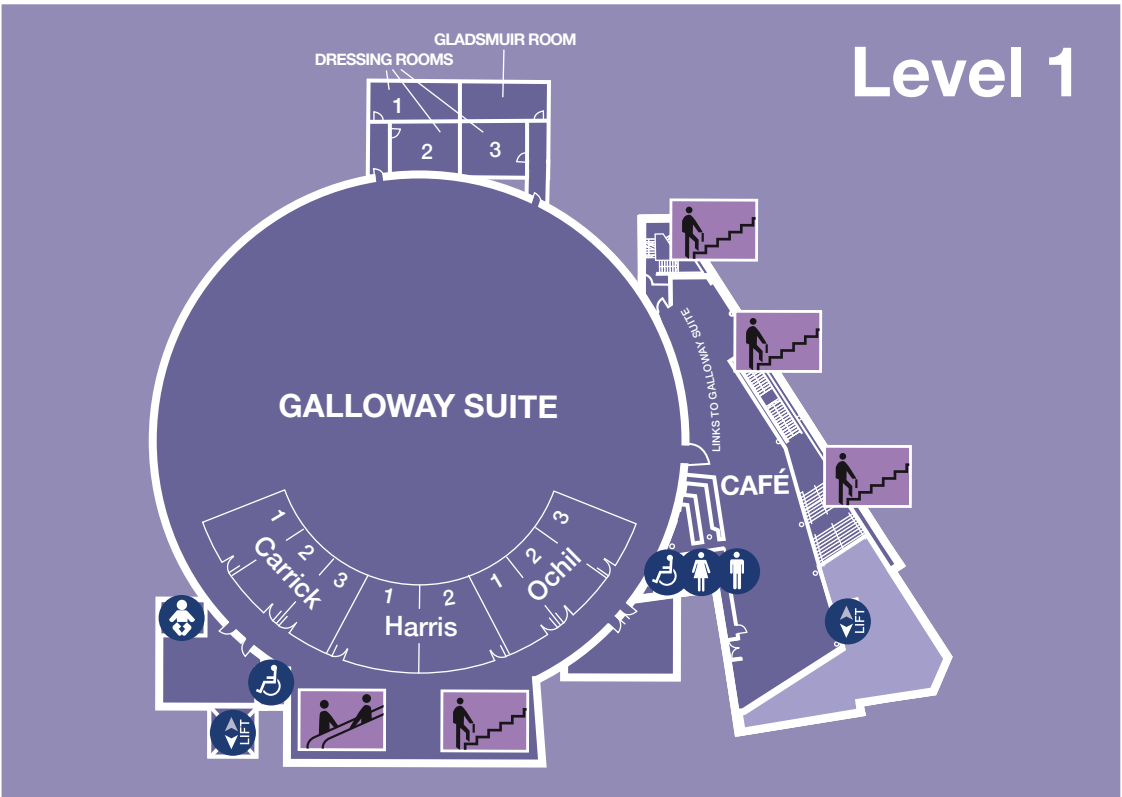
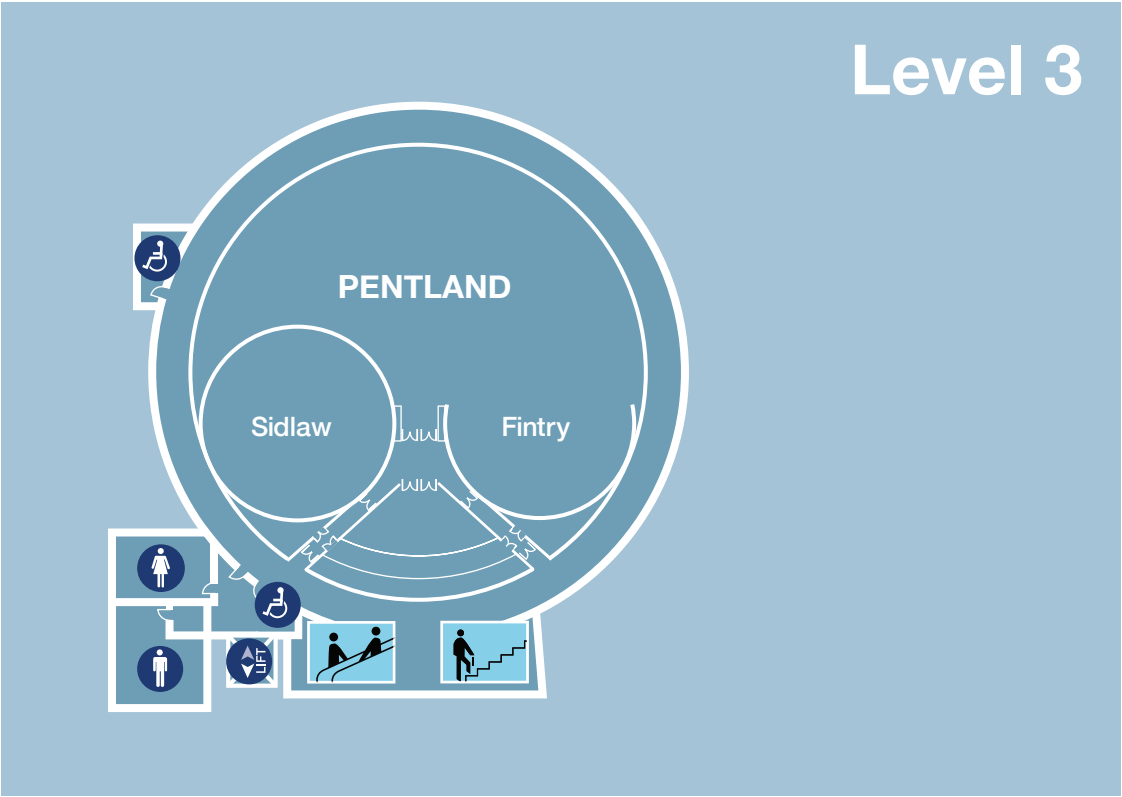
Don Barbieri, Patheon, U.S.A.

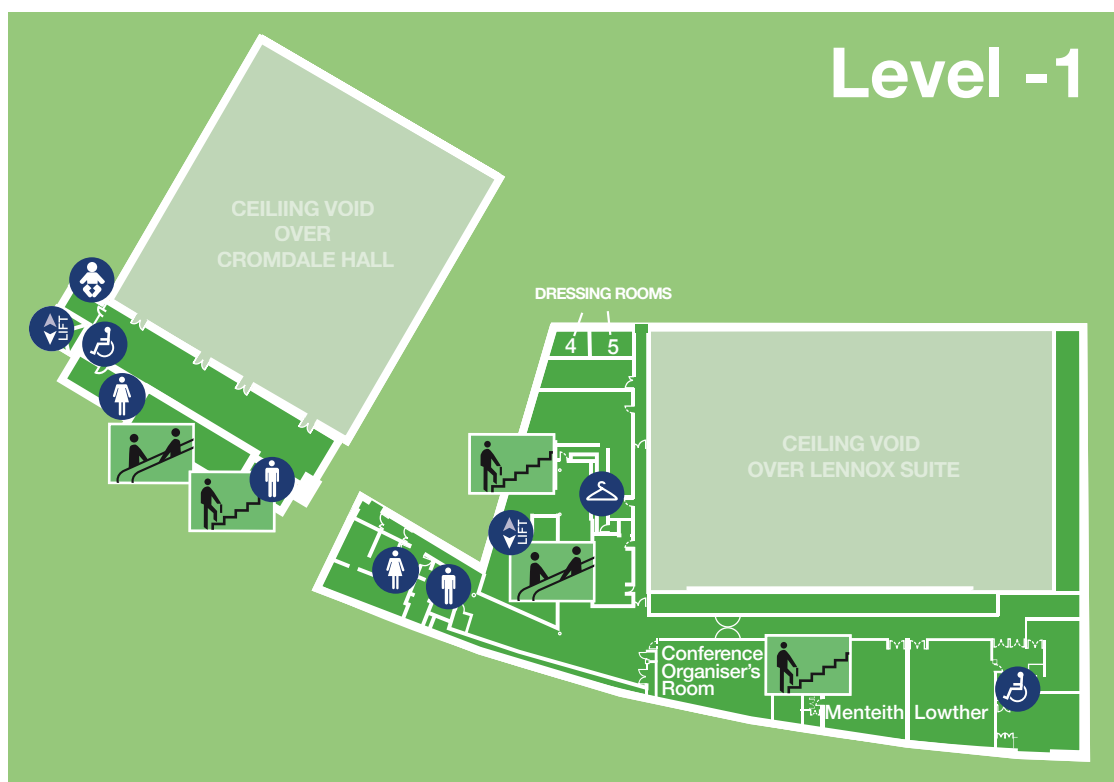
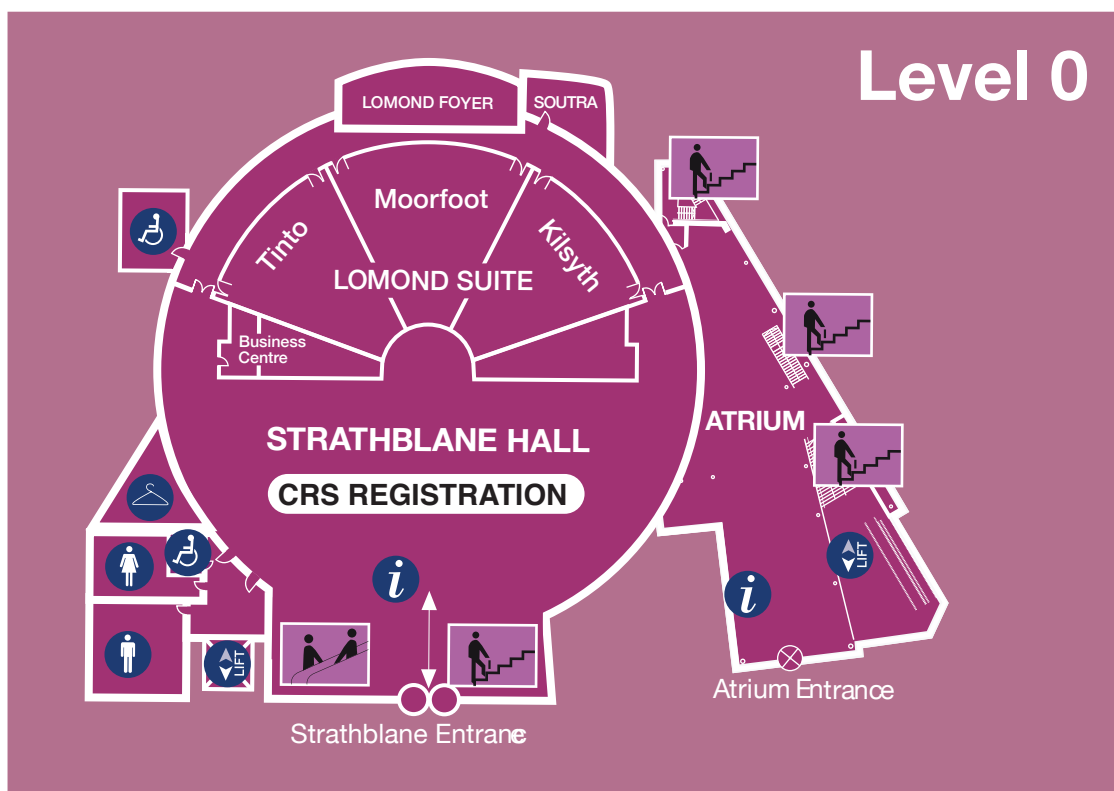
Lauren (Wood) Petraglia, LCI Corporation, U.S.A.

Register today! Visit [controlledreleasesociety.org](https://www.controlledreleasesociety.org) to register and view workshop details.



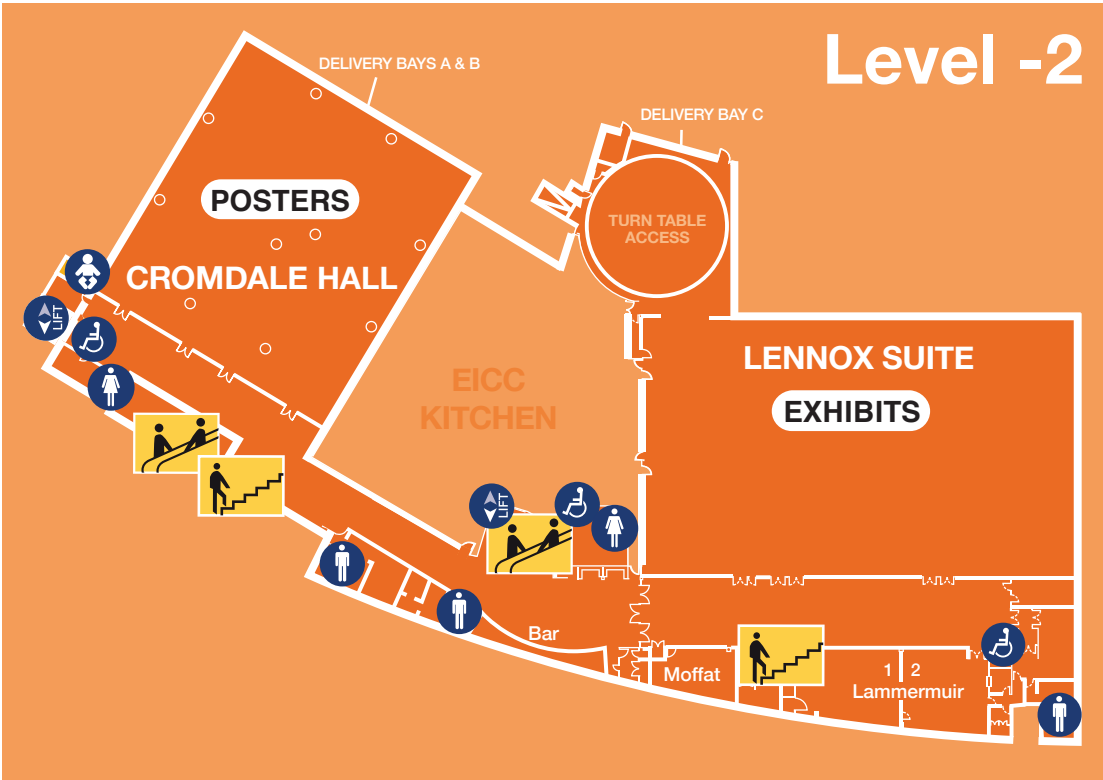
Edinburgh International Conference Centre





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Edinburgh International Conference Centre



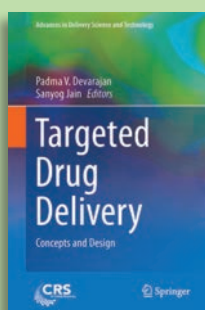
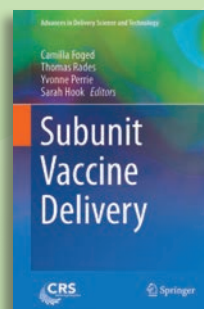
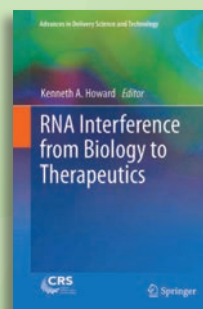
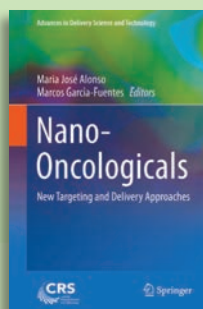
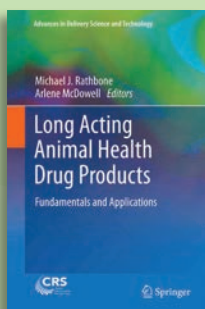
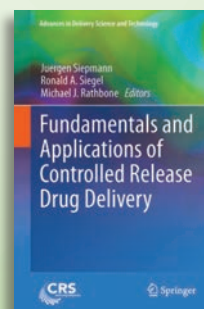
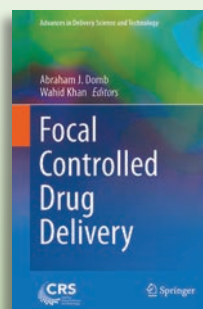
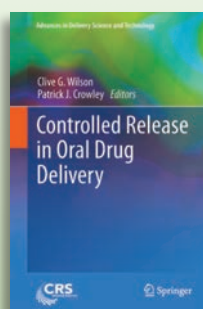
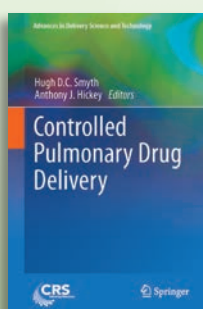
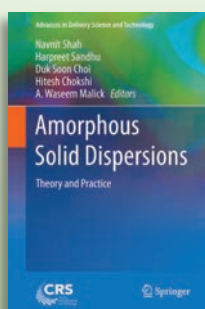
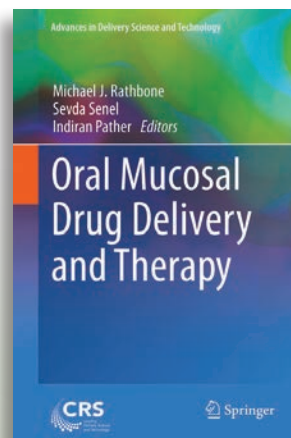
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Schedule-at-a-Glance

Saturday, July 25

7:30 a.m. – 5:00 p.m.	CRS Registration Open	Strathblane Hall
7:30 a.m. – 5:00 p.m.	Speaker Preparation Room Open	Conference Organiser's Room
8:00 a.m. – 5:00 p.m.	Exhibit Set-Up	Lennox Suite
8:00 a.m. – 5:00 p.m.	Premeeting Workshop: Ocular Drug Delivery – Challenges of Matching New Technologies with Drug Pharmacokinetics*	Moorfoot
8:00 a.m. – 5:00 p.m.	Young Scientist Workshop: The Rise, and Rise, of Precision Medicine	Sidlaw

Sunday, July 26

7:30 a.m. – 5:00 p.m.	Speaker Preparation Room Open	Conference Organiser's Room
7:30 a.m. – 7:30 p.m.	CRS Registration Open	Strathblane Hall
8:00 a.m. – 12:00 p.m.	Young Scientist Workshop: Finding Your Career Edge	Sidlaw
8:00 a.m. – 12:10 p.m.	Premeeting Workshop: Delivery of Therapeutic Bioconjugates: From Polymer Conjugates to Antibody-Drug Conjugates*	Menteith
8:00 a.m. – 2:00 p.m.	Exhibit Set-Up	Lennox Suite
9:00 – 10:00 a.m.	Technology Forum: Evonik Industries AG	Carrick
9:00 – 10:00 a.m.	Technology Forum: Lucideon Limited	Harris 2
9:00 – 10:00 a.m.	Technology Forum: MedImmune	Harris 1
9:00 – 10:00 a.m.	Technology Forum: Wyatt Technology Corporation	Ochil
10:15 – 11:15 a.m.	Technology Forum: Agilent Technologies	Ochil
10:15 – 11:15 a.m.	Technology Forum: Evonik Industries AG	Carrick
10:15 – 11:15 a.m.	Technology Forum: MedPharm	Harris 1
11:30 a.m. – 12:30 p.m.	Technology Forum: Catalent Pharma Solutions & BASF Corp.	Carrick
11:30 a.m. – 12:30 p.m.	Technology Forum: Corbion Purac Biomaterials & MedinCell	Harris 1
11:30 a.m. – 12:30 p.m.	Technology Forum: Powder Systems Limited	Ochil
12:00 – 2:00 p.m.	Leadership Forum (<i>by invitation</i>)	Sheraton, Edinburgh Suite 2 (offsite)
12:30 – 2:00 p.m.	Young Scientist Roundtable: Drug Delivery Technology and Clinical Development	Sidlaw
1:00 – 2:40 p.m.	Soapbox Sessions	Lomond Suite
1:00 – 4:00 p.m.	Poster Session I Set-Up	Cromdale Hall
2:00 – 3:00 p.m.	First Timers' Meeting	Lowther
3:00 – 3:50 p.m.	Plenary Session: Vincent H. L. Lee	Pentland
4:00 – 5:30 p.m.	Industry Roundtable – Drugs, Delivery, and Patients – How Will We Bring It All Together in the New World?	Lomond Suite
4:30 – 5:30 p.m.	Speed Mentoring Event	Lammermuir
5:30 – 7:30 p.m.	Exposition Grand Opening and Welcome Reception	Lennox Suite

*Additional registration, payment, and ticket required.

Monday, July 27

7:00 – 8:00 a.m.	Get Up! Get Educated! Choosing the Best Animal Model for Your Drug Delivery Studies	Moorfoot
7:00 a.m. – 5:00 p.m.	Speaker Preparation Room Open	Conference Organiser's Room
7:00 a.m. – 5:00 p.m.	CRS Registration Open	Strathblane Hall
8:00 – 9:30 a.m.	CRS Opening Session	Pentland
9:30 – 10:30 a.m.	Poster Session I Authors Present – Group A	Cromdale Hall
9:30 – 10:30 a.m.	Exposition Hall Open	Lennox Suite
9:30 a.m. – 6:00 p.m.	Poster Session I Viewing Hours	Cromdale Hall
10:30 a.m. – 12:00 p.m.	Mini-Symposium: Modeling and Simulation of Oral Absorption – A Progress Report from the EU/IMI Project OrBiTo	Pentland
10:30 a.m. – 12:00 p.m.	Scientific Sessions • Drug Delivery to the Brain • Encapsulation for Industrial Applications • Modulated and Responsive Delivery Systems • Transdermal Delivery	Sidlaw Tinto Fintry Moorfoot Lennox Suite Pentland
12:00 – 1:00 p.m.	Exposition Hall Open (lunch available for purchase)	
1:00 – 2:45 p.m.	Plenary & Special Session: Cameron Alexander and Nicholas A. Peppas	Pentland
3:00 – 4:30 p.m.	Mini-Symposium: Therapeutic Cancer Nanomedicines	Pentland
3:00 – 4:30 p.m.	Scientific Sessions • Delivery of Vaccines • Manufacture, Characterization, Measurement, and Stability • Oral Delivery for Food • Respiratory Drug Delivery	Sidlaw Tinto Fintry Moorfoot Lennox Suite Cromdale Hall Shakespeare (offsite) Cromdale Hall The Scotch Whisky Experience (offsite)
4:30 – 5:30 p.m.	Exposition Hall Happy Hour	
5:00 – 6:00 p.m.	Poster Session I Authors Present – Group B	
5:30 – 6:30 p.m.	PSAH Networking Event*	
6:00 – 6:30 p.m.	Poster Session I Take-Down	
9:00 – 10:30 p.m.	Young Scientist Networking Event*	

Tuesday, July 28

7:00 – 8:00 a.m.	Get Up! Get Educated! Trends in Protein Delivery	Moorfoot
7:00 – 8:00 a.m.	Poster Session II Set-Up	Cromdale Hall
7:00 a.m. – 5:00 p.m.	Speaker Preparation Room Open	Conference Organiser's Room
7:00 a.m. – 5:00 p.m.	CRS Registration Open	Strathblane Hall
8:00 – 9:30 a.m.	Plenary Session: María José Alonso	Pentland
9:30 – 10:30 a.m.	Exposition Hall Open	Lennox Suite
9:30 – 10:30 a.m.	Poster Session II Authors Present – Group C	Cromdale Hall
9:30 a.m. – 4:30 p.m.	Poster Session II Viewing Hours	Cromdale Hall
10:30 – 11:30 a.m.	Chapter Chair Networking Break (by invitation)	Atrium Café
10:30 a.m. – 12:00 p.m.	Mini-Symposium: Next-Generation Vaccine Development and Delivery Technologies	Moorfoot
10:30 a.m. – 12:00 p.m.	Scientific Sessions • <i>In Vivo</i> Nucleic Acid Delivery • Nano-Sized Carriers for Small Molecule Oncology Drugs • Ocular Drug Delivery • Oral Drug Delivery	Tinto Sidlaw Fintry Pentland Carrick Lennox Suite Sheraton, Stirling Suite (offsite) Moorfoot
12:00 – 1:00 p.m.	Lunch with the Luminaries*	
12:00 – 1:30 p.m.	Exposition Hall Open (lunch available for purchase)	
12:00 – 1:30 p.m.	C&DP Luncheon*	
1:30 – 3:00 p.m.	Mini-Symposium: European Technology Platform on Nanomedicine: Translation of Nanomedicines	

continued

Schedule-at-a-Glance

Tuesday, July 28 (continued)

1:30 – 3:00 p.m.	Scientific Sessions: • Delivery of Peptides and Proteins • Delivery Science in Cosmetics, Personal Care, and Household Products • Parenteral Delivery Technologies • siRNA and mRNA Delivery	Pentland Tinto Sidlaw Fintry
3:00 – 4:30 p.m.	Exposition Hall Open	Lennox Suite
3:30 – 4:30 p.m.	Poster Session II Authors Present – Group D	Cromdale Hall
4:00 – 5:30 p.m.	College of Fellows Panel: How Can We Make Nanomedicine Work?	Pentland
4:30 – 5:00 p.m.	Poster Session II Take-Down	Cromdale Hall
4:30 – 6:30 p.m.	Exhibit Take-Down	Lennox Suite
5:00 – 6:30 p.m.	Women in Science Networking Event*	Moorfoot
7:30 – 10:00 p.m.	CRS Closing Reception	The Assembly Rooms (offsite)

Wednesday, July 29

7:30 a.m. – 12:00 p.m.	CRS Registration Open	Strathblane Hall
8:00 – 9:30 a.m.	Mini-Symposium: Cost-Effective Encapsulation for Industrial Applications: Limitations and Solutions	Moorfoot
8:00 – 9:30 a.m.	Scientific Sessions • Drug Delivery in Tissue Engineering • Formulating Oral Solid Dosage Forms to Enhance Drug Delivery • Nanocarriers for Combined Delivery • Nanosystems for Non-Oncology Drug Delivery	Sidlaw Tinto Pentland Fintry
9:45 – 11:00 a.m.	Plenary Session: Renata Pasqualini	Pentland

**Additional registration, payment, and ticket required.*

Daily Schedule

Saturday, July 25

7:30 a.m. – 5:00 p.m.	CRS Registration Open	Strathblane Hall
7:30 a.m. – 5:00 p.m.	Speaker Preparation Room Open	Conference Organiser's Room
8:00 a.m. – 5:00 p.m.	Exhibit Set-Up	Lennox Suite
8:00 a.m. – 5:00 p.m.	Premeeting Workshop: Ocular Drug Delivery – Challenges of Matching New Technologies with Drug Pharmacokinetics*	Moorfoot
8:00 a.m. – 5:00 p.m.	Young Scientist Workshop: The Rise, and Rise, of Precision Medicine	Sidlaw

Saturday Program Highlights

Premeeting Workshop*

Ocular Drug Delivery – Challenges of Matching New Technologies with Drug Pharmacokinetics*

Cosponsored by Envisia Therapeutics, GrayBug, Novaliq GmbH, Ora, Phoenix Research Labs, and pSivida Corp.

8:00 a.m. – 5:00 p.m. • Moorfoot

Organizers: Ilva Rupenthal, University of Auckland, New Zealand; and Michael O'Rourke, Scotia Vision Consultants, U.S.A.

Young Scientist Workshop

The Rise, and Rise, of Precision Medicine

8:00 a.m. – 5:00 p.m. • Sidlaw

Chairs: Patrick Baumhof, CureVac GmbH, Germany; Yewande Oni, University of Nottingham, United Kingdom; and Jennifer Wong, University of Sydney, Australia

Panelists: **Simon Gaisford**, University College London, United Kingdom; **Carlos Garcia-Echeverria**, Sanofi, France; and **Heinrich Haas**, BioNTech RNA Pharmaceuticals GmbH, Germany; and **Devendra Pade**, SimCyp Limited, United Kingdom

The era of precision medicine has emerged since the human genome sequence was completed in 2001. Advancements involving the use of marker-assisted diagnosis and targeted therapies derived from an individual's genetic makeup will impact the way drugs are developed. This workshop will provide an overview of precision medicine to understand the opportunities in drug delivery that can be leveraged. This session features invited speakers to provide in-depth insights, practical case studies, and lively scientific debate.

Complimentary event open to all young scientists and other

Looking for the Abstracts?



CRS MEETING APP

Download the app to your mobile device, or use the desktop app website: mobileapp.controlledrelease.org. Abstracts are available in the Posters and the Program Guide session details.

CRS WEBSITE

The abstracts are available within the CRS meeting website and can be accessed using your CRS username and password.

*Additional registration, payment, and ticket required.

Daily Schedule

Sunday, July 26

Sunday

7:30 a.m. – 5:00 p.m.	Speaker Preparation Room Open	Conference Organiser's Room
7:30 a.m. – 7:30 p.m.	CRS Registration Open	Strathblane Hall
8:00 a.m. – 12:00 p.m.	Young Scientist Workshop: Finding Your Career Edge	Sidlaw
8:00 a.m. – 12:10 p.m.	Premeeting Workshop: Delivery of Therapeutic Bioconjugates: From Polymer Conjugates to Antibody-Drug Conjugates*	Menteith
8:00 a.m. – 2:00 p.m.	Exhibit Set-Up	Lennox Suite
9:00 – 10:00 a.m.	Technology Forum: Evonik Industries AG	Carrick
9:00 – 10:00 a.m.	Technology Forum: Lucideon Limited	Harris 2
9:00 – 10:00 a.m.	Technology Forum: MedImmune	Harris 1
9:00 – 10:00 a.m.	Technology Forum: Wyatt Technology Corporation	Ochil
10:15 – 11:15 a.m.	Technology Forum: Agilent Technologies	Ochil
10:15 – 11:15 a.m.	Technology Forum: Evonik Industries AG	Carrick
10:15 – 11:15 a.m.	Technology Forum: MedPharm	Harris 1
11:30 a.m. – 12:30 p.m.	Technology Forum: Catalent Pharma Solutions & BASF Corp.	Carrick
11:30 a.m. – 12:30 p.m.	Technology Forum: Corbion Purac Biomaterials & MedinCell	Harris 1
11:30 a.m. – 12:30 p.m.	Technology Forum: Powder Systems Limited	Ochil
12:00 – 2:00 p.m.	Leadership Forum (<i>by invitation</i>)	Sheraton, Edinburgh Suite 2 (offsite)
12:30 – 2:00 p.m.	Young Scientist Roundtable: Drug Delivery Technology and Clinical Development	Sidlaw
1:00 – 2:40 p.m.	Soapbox Sessions	Lomond Suite
1:00 – 4:00 p.m.	Poster Session I Set-Up	Cromdale Hall
2:00 – 3:00 p.m.	First Timers' Meeting	Lowther
3:00 – 3:50 p.m.	Plenary Session: Vincent H. L. Lee	Pentland
4:00 – 5:30 p.m.	Industry Roundtable – Drugs, Delivery, and Patients – How Will We Bring It All Together in the New World?	Lomond Suite
4:30 – 5:30 p.m.	Speed Mentoring Event	Lammermuir
5:30 – 7:30 p.m.	Exposition Grand Opening and Welcome Reception	Lennox Suite

*Additional registration, payment, and ticket required.

Sunday Program Highlights

CRS Innovation Sunday

Cosponsored by Pfizer

Delivery Science Meets Business Opportunities

CRS Innovation Sunday is all about the business of delivery science, taking innovative ideas and technologies into the commercial sector. All of these sessions give you important new information on companies and technologies as well as great opportunities for networking face-to-face. This is the start of the CRS Annual Meeting program—don't miss it!

Industry Roundtable

Drugs, Delivery, and Patients – How Will We Bring It All Together in the New World?

4:00 – 5:30 p.m. • Lomond Suite

There is a new world of patient centric care coming, and it is both exciting and complex. As pharma and biotech companies position to expand the boundaries of self- and home-care via increased connectivity, it is clear that controlled release and combination drugs are central to their plans. We will discuss the facts and predictions surrounding this field of study. How do innovators of delivery technology take advantage? How do patients want their drugs delivered? What do patients want from their providers? Much of this is still unknown, but much of it has been discovered and is playing out in real time as seen in recent M&A activity and strategic partnerships. The panel of experts with deep industry knowledge from both the small innovative and large pharmaceutical company perspectives will discuss this industry shift that will impact each of our professional and personal lives.

Speaker and Moderator: **Debra Bingham**, CRS President-Elect, Partner, Valeo Partners, U.S.A.

Panelists:

Barbara Lead, CEO of Oval Medical

Begoña Carreño, Novartis Pharmaceuticals, Switzerland

Caroline Feeley, New Products Director, Respiratory Devices & Telehealth

Premeeting Workshop*

Cosponsored by Caisson Biotech LLC

Delivery of Therapeutic Bioconjugates: From Polymer Conjugates to Antibody-Drug Conjugates

8:00 a.m. – 12:10 p.m. • Menteith

Organizer: Roger Pak, Pfizer Inc., U.S.A.

Young Scientist Workshop

Finding Your Career Edge

8:00 a.m. – 12:00 p.m. • Sidlaw

Organizers: Shio Fern Ng, National University of Malaysia, Malaysia; Yewande Oni, University of Nottingham, United Kingdom; and Jennifer Wong, University of Sydney, Australia

Speaker: **Teresa Virgallito**, Microtek Laboratories, U.S.A.

Panelists: **Patrick Baumhof**, CureVac GmbH, Germany; and **Joshua Reineke**, Wayne State University, U.S.A. Additional panelists TBD.

Gain an edge in today's job market through this workshop that aims to help young scientists launch successful careers in academia, industry, and government. This workshop will encompass career planning, job application and interview tips, and a discussion panel who will reflect on their career progression.

Complimentary event open to all young scientists and other interested conference attendees.

Young Scientist Roundtable

Drug Delivery Technology and Clinical Development

12:30 – 2:00 p.m. • Sidlaw

Moderators: **Ron Ortiz**, Upsher-Smith Laboratories, U.S.A.; and **Joshua Reineke**, Wayne State University, U.S.A.

Panelists: **Richard Korsmeyer**, Pfizer Inc, U.S.A.; **Christopher Rhodes**, Drug Delivery Experts, U.S.A.; and **Mark Tracy**, Tracy BioConsulting, LLC, U.S.A.

Clinical trials are arguably the most complex and expensive part of the drug development process. Learn about what is required to advance a drug delivery technology from discovery to commercial development. This roundtable will discuss the challenges and lessons learned in developing drug delivery technology through the clinical trials process and to commercial marketing. The panel of speakers will cover a series of case studies featuring a variety of delivery systems and technologies.

Speed Mentoring Event

4:30 – 5:30 p.m. • Lammermuir

Organizers: The Young Scientist Committee

Through a series of quick exchanges with multiple contacts, students and young professionals will have the opportunity to seek career and research guidance, hear about the experiences of others, and potentially find a long-term mentor/protégé match. Bring plenty of business cards and plan on starting connections that could last a lifetime.

Please be advised this event is open only to individuals who have preregistered. Thank you for your cooperation!

*Additional registration, payment, and ticket required.

Sunday Program Highlights (continued)

Plenary

3:00 – 3:50 p.m. • Pentland/Fintry

Moderator: Justin Hanes, Johns Hopkins University, U.S.A.

Customized Drug Delivery: A Personal Odyssey



Vincent H. L. Lee, School of Pharmacy, Faculty of Medicine, Chinese University of Hong Kong, China

Dr. Lee will share how his personal struggle with Parkinson's Disease and his tenure at ALZA and subsequently at the FDA have sharpened his appreciation for the sea change in the culture of drug

delivery science and regulation that must take place in order for society to benefit from the promise of customized drug delivery in a timely manner.

First Timers' Meeting

2:00 – 3:00 p.m. • Lowther

If this is your first CRS Annual Meeting, or even if you have attended for many years, learn how to get the most from the annual meeting program by attending this welcome and question-and-answer session.

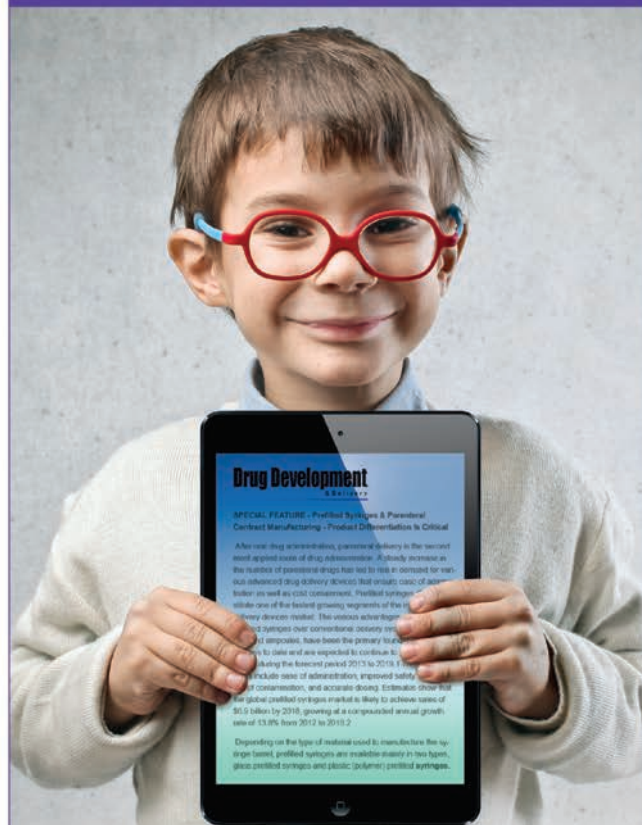
Exposition Grand Opening and Welcome Reception

Cosponsored by LACTEL Absorbable Polymers

5:30 – 7:30 p.m. • Lennox Suite

Innovation Sunday concludes with the official opening of the exhibit hall in a quintessentially Scottish fashion—with a strolling Scottish bagpiper! Enjoy a beverage and snack as you follow the bagpiper and move through the exhibit hall to find new products and services. Connect with some of the leading suppliers in delivery science, meet with exhibitors, and visit with colleagues.

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Ralph Vitaro • 973-263-5476 • rvitaro@drug-dev.com

Technology Forums

These forums are open to all registered attendees on a complimentary basis, offering in-depth coverage of controlled release technologies and services, hosted by the following companies.

9:00 – 10:00 a.m.

Evonik. Power to create.

Strategies for Modified Release Alcohol Resistant Formulations

Carrick

Presenter: Dr. Firouz Asgarzadeh

Presentation Areas: Formulation

This presentation provides insights into effective formulation strategies meeting physiological/regulatory challenges when developing alcohol resistant products. The relevance of hydro-alcoholic *in vitro* dissolution media selection on formulation development is discussed. Several formulation concepts with EUDRAGIT® enabling development of robust modified release formulations for both matrix and coated multiparticulates are presented.

Company website: www.evonik.com/eudragit

LUCIDEON

Inorganic Materials for Controlled Release – The Much-Needed Alternative to Polymers?

Harris 2

Presenter: Dr. Mark Cresswell

Presentation Areas: Formulation

Inorganic materials offer enhanced versatility for delivery of actives, through understanding and control of the process and chemistry. We will highlight the benefits of using inorganic controlled release technologies (iCRT) for sustained/immediate release of organic actives/inorganic ions for applications including oral drug formulations, abuse deterrence, antimicrobial activity, remineralization of teeth, and fertilizers.

Company website: www.lucideon.com/crt

MedImmune

A member of the AstraZeneca Group

Can Formulation Science Improve Your Delivery Strategy for Emerging Antibody Formats?

Harris 1

Presenter: Dr. Chris van der Walle

Presentation Areas: Formulation

To explore what lies “beyond injections” for monoclonal antibody formats an understanding of their formulation needs is essential. For example, translating sophisticated delivery systems into development may require consideration of protein (cargo) behavior at high concentration. The presentation will address potential gaps in knowledge and invite discussion from the audience.

Company website: www.medimmune.com



The Light Scattering Toolkit for Characterization and Formulation of Drug Delivery Nanoparticles

Ochil

Presenter: Daniel Some

Presentation Areas: Characterization, Formulation

Light scattering addresses many key analytical challenges in drug nanoparticle R&D, including accurate size distributions, conformation, payload, and formulation. We review light scattering fundamentals and then present examples illustrating how Wyatt's unique light scattering instrumentation facilitates rapid and effective development of controlled release vehicles including liposomes, VLPs, polymer-encapsulated nanoparticles, and nanogels.

Company website: www.wyatt.com

10:15 – 11:15 a.m.



Agilent Technologies

Extreme Dissolution – Techniques for Testing Novel Delivery Systems

Ochil

Presenter: Terry Way

Presentation Areas: Formulation, Quality & Analytical, Processing

The dissolution test has evolved to become a definitive tool used to evaluate the rate of drug release and thereby define the performance characteristics of many types of pharmaceutical dosage forms. The variety of dosage forms today includes orally ingested products such as tablets, capsules, and suspensions, as well as powders, ointments, creams, gels, osmotic pumps, transdermal patches, implants, medicated contact lenses, stents, coated beads, wound care products, bone cement, powders for inhalation, chewing gums, nanoparticulate injections, and so on.... Over the last 50 years, dissolution apparatus has therefore required continuous improvement and modification to provide suitable conditions for appropriate performance testing of these products. This forum session will review the range of techniques used to evaluate the more recent formulation technologies requiring specialized apparatus using volumes of media from 5 to 5,000 mL over time intervals from 7 minutes to 7 days, illustrated with specific case studies.

Company website: www.agilent.com

continued

Evonik. Power to create.

Case Study Developing Complex, Extended-Release Products from Feasibility to Production

Carrick

Presenter: Dr. Thomas R. Tice

Presentation Areas: Formulation

The interplay between drug properties, polymer properties, process parameters, and aspects such as meeting regulatory requirements make complex parenteral formulations challenging to develop. The presentation shows Evonik's experiences addressing these challenges and highlights key topics such as product design, technology selection, feasibility studies, process scale-up, manufacturing, and product release testing.

Company website: www.evonik.com/resomer



Drug Permeation Enhancement Across Skin Using Novel Components from Natural Moisturising Factor (NMF)

Harris 1

Presenter: Prof. Marc Brown

Presentation Areas: Formulation

MedPharm has developed a series of patented novel hydrotropes (AquaRMed™) that increase hydration of the skin. These compounds are derived from natural moisturising factor (NMF), a series of compounds that aid water retention within the skin. NMF is a breakdown product of filagrin.

Company website: www.medpharm.co.uk

11:30 a.m. – 12:30 p.m.

Catalent®

BASF
We create chemistry

Formulation Solutions Using Hot Melt Extrusion for Poorly Soluble Drugs

Carrick

Presenter: Sampada B. Upadhye, and BASF presenter

Presentation Areas: Formulation, Processing

This forum will discuss development of hot melt extruded oral solid dosage forms leveraging the OptiMelt™ HME platform. Expert speakers will provide guidance on selection and screening of polymers/excipients for optimal development and scale-up of hot melt extruded products, followed by a Q&A session hosted by BASF and Catalent Pharma.

Company website: www.catalent.com



MedinCell
GLOBAL HEALTH DELIVERED

PLGA in Controlled Release Gel Systems, from Polymer to Product

Harris 1

Presenter: Wim Hennink

Presentation Areas: Formulation

Prof. Wim Hennink will give an introduction to gel-based controlled drug delivery systems. Dr. Mart Eenink will present PURASORB PLGAs as resorbable polymers for use in parenteral drug delivery systems. Dr. Georges Gaudriault will introduce the Bepo™ technology platform for a new generation controlled release, localized, and sustained drug delivery.

Company website: www.corbion.com/biomaterials



A Refined Solution for Microsphere Formulation

Ochil

Presenter: Sylvain Querol

Presentation Areas: Formulation, Processing

Parenteral microsphere drug production is experiencing a fast-growing demand, and drug manufacturers are facing new challenges during process scale-up from R&D to commercial formulation. Microspheres obtained from encapsulation processes require aseptic filtration and drying methods to recover the final product. PSL will present their innovative solution, the Microsphere Refiner.

Company website: www.powdersystems.com

Soapbox Sessions

Cosponsored by Catalent Pharma Solutions

1:00 – 2:40 p.m. • Lomond Suite

What's new in delivery science? Come to the program where presenters "get up on their soapbox" to give you a quick glimpse of some of the most innovative technologies and products in development today. Session breaks allow time to network with presenters at their designated tables during beverage breaks, hosted by our sponsor.

1:00 – 1:05 p.m. **Introduction and Welcome**
Moderator: Michael J. Valazza, Catalent Pharma Solutions

Session I

1:05 – 1:10 p.m. **Molded Polymer Dosage Forms – Current and Future Applications in Women's Health**
James Arps, ProMed Pharma, U.S.A.

1:10 – 1:15 p.m. **Shaping of Polymers for Drug Delivery Applications**
Anthony Listro, Foster Delivery Science, U.S.A.

1:15 – 1:20 p.m. **Don't Fry Your API! Try Low Temperature Extrusion with Lipids**
Sophie Hughes, Gattefosse, France

1:20 – 1:25 p.m. **SmartPearls – Dermal Delivery System for Amorphous Poorly Soluble Drugs**
Rainer H. Müller, Grace, Germany

1:25 – 1:30 p.m. **Foamed Polymer Excipients: Novel Way to Deliver Stem Cells, Growth Factors and Biologics For Controlled Release Applications**
Christian Schneider, Celanese, U.S.A.

1:30 – 1:40 p.m. **Networking Break**

Session II

1:40 – 1:45 p.m. **Microjet Reactor Technology for Continuous Nanoparticle Production under Controlled Conditions**
Nazende Günday Türeli, MJR PharmJet, Germany

1:45 – 1:50 p.m. **Injectable Hydrogels to Treat Low Back Pain via Controlled Release of Celecoxib or siRNA Transfection**
Nicole Papen-Botterhuis, TNO, The Netherlands

1:50 – 1:55 p.m. **V-Smart™ Nanomedicines for Neurology**
Susan Rosenbaum, Lauren Sciences LLC, U.S.A.

1:55 – 2:00 p.m. **Modular. Scalable. Future-proof. The New Xtend™ Dissolution Testing Concept**
Michel Magnier, Sotax, Switzerland

2:00 – 2:05 p.m. **Innovative Dissolution For a Better Formulation Understanding**
Samir Haddouchi, SPS Pharma Services, France

2:05 – 2:15 p.m. **Networking Break**

Session III

2:15 – 2:20 p.m. **Novel Direct Injectable and Biodegradable DDS for Parenteral Controlled Release**
Karsten Maeder, Institute of Pharmacy, Martin Luther University Halle, Germany

2:20 – 2:25 p.m. **Functionalized Calcium Carbonate (FCC): Newly Developed Structured Minerals as Multifunctional Excipients**
Carolina Diaz Quijano, Omya, Switzerland

2:25 – 2:30 p.m. **Consumer Buying Behavior**
Michael Osafo Yeboah, MacDove Ventures, Ghana

2:30 – 2:40 p.m. **Networking Break**

Daily Schedule

Monday, July 27

Monday

7:00 – 8:00 a.m.	Get Up! Get Educated! Choosing the Best Animal Model for Your Drug Delivery Studies	Moorfoot
7:00 a.m. – 5:00 p.m.	CRS Registration Open	Strathblane Hall
7:00 a.m. – 5:00 p.m.	Speaker Preparation Room Open	Conference Organiser's Room
8:00 – 9:30 a.m.	CRS Opening Session	Pentland
9:30 – 10:30 a.m.	Poster Session I Authors Present – Group A (odd-numbered)	Cromdale Hall
9:30 – 10:30 a.m.	Exposition Hall Open	Lennox Suite
9:30 a.m. – 6:00 p.m.	Poster Session I Viewing Hours	Cromdale Hall
10:30 a.m. – 12:00 p.m.	Mini-Symposium: Modeling and Simulation of Oral Absorption – A Progress Report from the EU/IMI Project OrBiTo	Pentland
10:30 a.m. – 12:00 p.m.	Scientific Sessions • Drug Delivery to the Brain • Encapsulation for Industrial Applications • Modulated and Responsive Delivery Systems • Transdermal Delivery	Sidlaw Tinto Fintry Moorfoot Lennox Suite Pentland
12:00 – 1:00 p.m.	Exposition Hall Open (lunch available for purchase)	
1:00 – 2:45 p.m.	Plenary & Special Session: Cameron Alexander and Nicholas A. Peppas	Pentland
3:00 – 4:30 p.m.	Mini-Symposium: Therapeutic Cancer Nanomedicines	Pentland
3:00 – 4:30 p.m.	Scientific Sessions • Delivery of Vaccines • Manufacture, Characterization, Measurement, and Stability • Oral Delivery for Food • Respiratory Drug Delivery	Sidlaw Tinto Fintry Moorfoot Lennox Suite Cromdale Hall Shakespeare (offsite) Cromdale Hall The Scotch Whisky Experience (offsite)
4:30 – 5:30 p.m.	Exposition Hall Happy Hour	
5:00 – 6:00 p.m.	Poster Session I Authors Present – Group B (even-numbered)	
5:30 – 6:30 p.m.	PSAH Networking Event*	
6:00 – 6:30 p.m.	Poster Session I Take-Down	
9:00 – 10:30 p.m.	Young Scientist Networking Event*	

*Additional registration, payment, and ticket required.

Monday Program Highlights

Get Up! Get Educated!

Choosing the Best Animal Model for Your Drug Delivery Studies

7:00 – 8:00 a.m. • Moorfoot

Co-organized by the Young Scientist Committee and Preclinical Sciences & Animal Health Division

Chair: Raquel De Souza, University of Toronto, Canada

Speakers: **Marcel B. Bally**, Centre for Drug Research and Development (CDRD), Canada; **Tamara Minko**, Rutgers, The State University of New Jersey, U.S.A.

Significant preclinical efforts exist in developing nano drug delivery systems. Unfortunately, few undergo successful clinical development due in part to evaluation in inadequate animal models, hindering clinical translation of findings. In this workshop, attendees will acquire insightful perspectives on selecting appropriate animal models for nanodelivery research. An overview of important considerations and introduction to various classes of animal models will be followed by discussions on specific applications, including oncology.

Opening Session

8:00 – 9:30 a.m. • Pentland

The Opening Session will feature a welcome by President Art Tipton, who will provide a brief update on what your association is doing to further delivery science and technology during the annual business meeting portion of the meeting. This session will also be a time to honor the 2015 CRS Distinguished Service awardee, Kinam Park, outstanding Pharmaceutical Paper awardee, Jason Li, along with talks from our Founders Award winner, Gary Cleary, and CRS T. Nagai Postdoctoral Research Achievement Award winner, Gaurav Sahay. Five new members of the College of Fellows will also be inducted.

Monday Program Highlights (continued)

Poster Sessions

Posters are an important element of the CRS Annual Meeting—attendees share groundbreaking scientific achievements and learn about the latest technologies in delivery science.

Posters are displayed on Monday or Tuesday, and authors will be present during the dedicated sessions to discuss their research and answer questions.

Monday's poster topics include:

- Delivery of Proteins, Peptides, and Vaccines
- Manufacture, Characterization, Measurement, and Stability
- Oral Delivery for Food and Pharma
- Parenteral Controlled Release
- Regional Delivery

9:30 – 10:30 a.m. Poster Session I Authors Present – Group A (odd-numbered poster boards)

5:00 – 6:00 p.m. Poster Session I Authors Present – Group B (even-numbered poster boards)

Plenary Lecture and Special Session

1:00 – 2:45 p.m. • Pentland

Moderators: David Brayden, University College Dublin, Ireland; and Randy Mrsny, University of Bath, United Kingdom

Polymers and Nanomedicines – The Promises and Pitfalls of New Materials



Cameron Alexander, School of Pharmacy, University of Nottingham, United Kingdom

There are many challenges in the development of new drugs, not least of which are the issues relating to controlled release and targeting. Current therapies are suboptimal for diseases ranging from viral

and bacterial infection to cancers, and existing carrier materials have not been able to completely address the delivery problems. New materials offer much promise for controlled release, with many spectacular examples of efficacy in laboratory-scale experiments. However, very few proof-of-concept studies have progressed beyond these stages. Dr. Alexander's plenary presentation will deliver examples of recent scientific advances and consider the hurdles to translating these toward the clinic.

Intelligent Polymer Hydrogels: From Obscure Molecular Structures to Useful Multifunctional Systems for Drug and Protein Delivery, Targeting and Molecular Sensing



Nicholas A. Peppas, University of Texas at Austin, U.S.A.

Cross-linked polymeric networks with diverse characteristics and properties have been in the center of development of drug delivery systems over the past 40 years.

Understanding of the structural characteristics of such systems provides for accurate design on new delivery systems with targeting and recognition characteristics. This lecture offers a brief history of such hydrogels and discusses present and future applications.

Prior to the plenary, the CRS Foundation's 2014 Alexander "Sandy" Florence Postdoctoral Fellowship recipient, **Christopher Nelson**, will present research from his fellowship year. The 2015 **Nicholas A. Peppas Student Travel Grant** awardees will also be recognized.

PSAH Networking Event*

5:30 – 6:30 p.m. • Shakespeare (offsite)

This hour-long networking event is hosted by the Preclinical Sciences & Animal Health (PSAH) Division and will be held at a local Edinburgh pub. All attendees interested in the use of animal models in preclinical studies, interspecies differences in drug absorption, pharmacokinetics, and target site drug delivery, and all matters relating to the animal health industry are invited to attend.

Young Scientist Networking Event*

Cosponsored by Diurnal Limited and Upsher-Smith Laboratories, Inc.

9:00 – 10:30 p.m. • The Scotch Whisky Experience (offsite)

Reunite with familiar faces and make new connections when you attend this popular networking event, organized by the Young Scientist Committee. The event will be held at the Scotch Whisky Experience, where attendees will experience a whisky tasting featuring the four primary regions of Scotch whisky.

*Additional registration, payment, and ticket required.

	Sidlaw	Tinto	Fintry
	Drug Delivery to the Brain Moderator: Kannan Rangaramanujam Session Chairs: Mariarosazza, Anthony Kim	Encapsulation for Industrial Applications Moderator: Ruth Schmid Session Chairs: Chris McDaniel, Teresa Virgallito	Modulated and Responsive Delivery Systems Moderator: Christine Allen Session Chairs: Darren Svirskis, Qin He
	INVITED SPEAKERS		
10:30	1 Invited Speaker: Polymer Nanoparticles Delivered by Convection-Enhanced Delivery For Treatment of Brain Tumors <u>W Saltzman</u> Yale Univ, U.S.A.	3 Invited Speaker: Does size matter? Navigating the path from milli through micro to nano in the packaging of bioactives. <u>R J Neufeld</u> Queen's Univ, Canada	5 Invited Speaker: Photo, pH, and Reduction-Responsive Drug Release Nanosystems: Which is the Best for Targeted Cancer Chemotherapy? <u>Z Zhong</u> Soochow Univ, China
10:50	2 Invited Speaker: Targeted CNS delivery of cGMP analogue preventing inherited retinal degeneration <u>P J Gaillard</u> , H Genieser, M Valeria, P Ekström, F Paquet- Durand 2-bbb medicines BV, Netherlands	4 Invited Speaker: <u>R Kent</u> AnaBio Technologies Ltd., Ireland	6 Invited Speaker: Nanoscale Stimuli Responsive Systems for Targeted Delivery of Drugs and Nucleotides <u>J Kost</u> Ben-Gurion Univ of the Negev, Israel
	RESEARCH HIGHLIGHT TALKS AND MODERATED DISCUSSION		
11:10	439 Delivery of Brain-Penetrating Nanoparticles Across the Blood-Brain Barrier with Focused Ultrasound: Brain Tumor and Neurodegenerative Disease Applications B Mead, K Timbie, W Miller, P Mastorakos, C Zhang, J Suk, J Song, J Hanes, <u>R Price</u> University of Virginia, U.S.A.	519 Dry Polymer Coating for Improving Physical Stability of Amorphous Drug Formulations M Capece, <u>R Dave</u> New Jersey Institute of Technology, U.S.A.	674 Hybrid Bioactive Nanoparticles Modulate Tumor Microenvironment and Enhance Radiation Therapy <u>M Amini</u> , A Z Abbasi, C R Gordijo, A Maeda, R S DaCosta, A M Rautth, X Wu Leslie Dan Faculty of Pharmacy, University of Toronto, Canada
11:15	489 Selective Accumulation of PEG-liposomes in Brain after Traumatic Brain Injury <u>B J Boyd</u> , A Galle, J Rosenfeld, R Medcalf Monash Institute of Pharmaceutical Sciences, Australia	530 Stimuli-responsive organo-silica/polyurea composite microcapsules <u>J Yang</u> , M Pilz, C Simon SINTEF Materials and Chemistry, Norway	753 pH-sensitive liposomes for the delivery of therapeutic proteins: potential application for the treatment of bladder cancer M Vila-Caballer, G Codolo, F Munari, S Bersani, M Fassan, M Rugge, P Caliceti, M de Bernard, <u>S Salmasso</u> Department of Pharmaceutical and Pharmacological Sciences, University of Padova, Italy
11:20	157 Targeted Delivery of GDNF to Brain by Novel V-SmartTM Nanovesicles and its Efficacy in Parkinson's Disease Animal Model <u>S Rosenbaum</u> , M Popov, C Linder, E Shaubi, V Kas'yanov, I Hollander, S Grinberg, E Heldman Lauren Sciences LLC, U.S.A.	531 Taste Masking Active Pharmaceutical Ingredients Using a Novel Acoustic Mixing Process <u>R T McLaughlin</u> , A P Parker, S A Howes, C Smith, T Brown Catalent Pharma Solutions, United Kingdom	725 Multistage Stimuli-responsive and Sequential Size-alterable Nanovehicle for Systemic Nuclear-targeted Drug Delivery <u>L Li</u> , Y Huang Sichuan University, China
11:25	459 Image-guided Drug Delivery across the Blood-Brain Barrier using Theranostic Microbubbles <u>T Lammers</u> , P Koczera, F Kiessling RWTH Aachen University, Germany	249 Scaling up a high shear granulation process to gain granules suitable to formulate orally disintegrating tablets S Fros, T Agnese, <u>A Zakhvatayeva</u> , F Cembali, G Mondelli, T Cech, C Funaro BASF SE, Germany	806 Targeted Imaging of Cyclooxygenase-2 in Inflammation and Cancer by Fluorocoxib A-Loaded ROS-Responsive Nanoparticles <u>T Werfel</u> , M Uddin, B Crews, M Gupta, L Marnett, C Duvall Vanderbilt University, U.S.A.
11:30	692 Lactoferrin-bearing Polypropyleneimine Dendrimer for Targeted Gene Delivery to the Brain <u>S Somani</u> , G Robb, B Pickard, C Dufès University of Strathclyde, United Kingdom	522 Enzymatically Triggered Release from Zein Particles for Antimicrobial Coatings and Plasters M Nieuwland, <u>N E Papen-Butterhuis</u> , W C Drost, T M Slaghek, J Eversdijk, B Erich TNO Materials Solutions, Netherlands	784 Site-Specific Time and Sequential Nanoparticle Delivery of Chemotherapeutics for Synergy Enhancement V Segura-Ibarra, S Wu, F E Cara, F Meric-Bernstam, M Ferrari, <u>E Blanco</u> Houston Methodist Research Institute, U.S.A.

Moorfoot

Transdermal Delivery
Moderator: Mark Prausnitz
Session Chairs: Nicole Brogden,
Samir Mitragotri

- 10:30 7 Invited Speaker: V Preat
- 10:50 8 Invited Speaker: Expanding Transdermal Delivery to Biologics
B Singh
Corium Intl Inc., U.S.A.
- 11:10 947 *In vivo* Monitoring of Compound Permeation and Age Related Effects in Human Stratum Corneum
N J Starr, J Wibawa, I Marlow, M Bell, D A Barrett, D J Scurr
University of Nottingham, United Kingdom
- 11:15 927 Design of a Dissolving Microneedle Platform for Transdermal Delivery of a Fixed-dose Combination of Cardiovascular Drugs
H L Quinn, L Bonham, R F Donnelly
Queen's University Belfast, United Kingdom
- 11:20 976 Targeting of skin resident dendritic cells via laser microporation
Y J Machado, M Mayr, T Thalhamer, V Höpflinger, M Schmid, U Ritter, S Gordon, C Lehr, S Scheiblhofer, J Thalhamer, R Weiss
University of Salzburg - Department of Molecular Biology, Austria
- 11:25 920 Allergen-coated microneedles as a novel way for asthma preventive immunotherapy
A K Shakyia, C H Lee, H S Gill
Texas Tech University, U.S.A.
- 11:30 956 Micropore Closure Kinetics are Delayed Following Microneedle Insertion in Elderly Subjects
C C Converse, M N Kelchen, M J Farley, G O Holdren, N K Brogden
University of Iowa, U.S.A.

Pentland

Modeling and Simulation of Oral Absorption - A Progress Report from the EU/IMI Project OrBiTo
Moderators: Peter Langguth,
Clive Wilson

- 10:30 9 Invited Speaker: P Langguth
Johannes Gutenberg-University, Germany
- 11:00 10 Invited Speaker: Enhanced *in vitro* inputs for *in silico* prediction of oral absorption – progress within the Innovative Medicines Initiative OrBiTo project
M McAllister, R Holm, A Müllertz, J Butler, P Augustijns, B Abrahamsson, H Lennernäs
Pfizer Inc, United Kingdom
- 11:30 11 Invited Speaker: X Pepin
Sanofi, France

	Sidlaw	Tinto	Fintry
	Delivery of Vaccines Moderator: Derek O'Hagan Session Chairs: Hideyoshi Harashima, Camilla Foged	Manufacture, Characterization, Measurement, and Stability Moderator: Martyn Davies Session Chairs: Jaime Oxley, Jean-Antoine Meiners	Oral Delivery for Food Moderator: Iain Beck Session Chairs: Joeska Husny, Hans Tromp
	INVITED SPEAKERS		
3:00	12 Invited Speaker: Mucosal delivery of particulate vaccines <u>E.C Lavelle</u> School of Biochemistry and Immunology, Trinity Biomedical Sciences Institute, Trinity College Dublin, Ireland	14 Invited Speaker: <u>A Florence</u> University of Strathclyde, United Kingdom	16 Invited Speaker: Assembly of Karifin Nanoparticles-Based Pickering Emulsions for Nutraceutical Delivery <u>Q Huang</u> Rutgers Univ, U.S.A.
3:20	13 Invited Speaker: Vaccine delivery – depot or not? <u>D Christensen</u> Statens Serum Inst, Denmark	15 Invited Speaker: Assessing how excipients properties as well as the manufacturing process would influence solid oral dosage form performance and overall cost of manufacturing. <u>A Faham</u> Dow Chemical, Switzerland	17 Invited Speaker: <u>D O'Riordan</u> Food for Health, University College Dublin, Ireland
	RESEARCH HIGHLIGHT TALKS AND MODERATED DISCUSSION		
3:40	126 Needle-Free Transdermal Vaccine Delivery Systems Using Hyaluronate-Vaccine Conjugates <u>S Hahn</u> , H Kim, K Kim, S Yun POSTECH, South Korea	256 Structural analysis of nanosystems: Solid Span Nanoparticles (SSN) as a case study <u>A Pensado</u> , <u>I Fernández Piñeiro</u> , M Martín Pastor, A Sánchez, B Seijo University of Santiago de Compostela, Spain	375 Silica Encapsulated Lipid Based Drug Delivery Systems for Reducing the Food Effect of Ziprasidone <u>T J Denning</u> , S Rao, N Thomas, A Tan, C A Prestidge Ian Wark Research Institute, University of South Australia, Australia
3:45	120 Liposome-based vaccines for lung cancer treatment <u>C Loira Pastoriza</u> , C Herin, M Machado, K Vanvarenberg, R Vanbever Université catholique de Louvain, Belgium	210 Infacort® - Manufacturing Process Scale Up and Characterisation of a Taste Masked Multiparticulate Oral Hydrocortisone Formulation for Paediatric Use <u>G Neal</u> , M J Whitaker, A Grave, A Foerg, N Poellinger, D N Margetson Diurnal Ltd, United Kingdom	277 β -Casein Based Nano-vehicles for Oral Delivery of Chemotherapeutic Combinations Overcoming Multidrug Resistance in Human Gastric Cancer <u>M Bar-Zeev</u> , Y G Assaraf, Y D Livney Technion - Israel Institute of Technology, Israel
3:50	145 Rabies vaccination in dogs using a dissolving microneedle patch <u>J Arya</u> , K Dewitt, M Scott-Garrard, Y Chiang, M R Prausnitz Georgia Institute of Technology, U.S.A.	212 Injection Moulding of Controlled Release Solid Dispersions <u>A L Kelly</u> , S Deshmukh, A Paradkar, S Abrahmsén Alami, J Booth Centre for Pharmaceutical Engineering Science, University of Bradford, United Kingdom	273 Application of sodium alginate for enteric coated lactoferrin tablets <u>C Takahashi</u> , Y Obayashi, A Uchiyama, S Tanaka, H Iwasaki Lion Corporation, Japan
3:55	73 Biomimetically Engineered Demi-bacteria Potentiate Vaccination Against Cancer <u>W Wei</u> , D Ni, H Yue, G Ma National Key Laboratory of Biochemical Engineering, Institute of Process Engineering, Chinese Academy of Sciences. Beijing, China	250 Simultaneous Enhancement of Dissolution and Tribo-electrification of Solid Dispersions <u>K Asare-Addo</u> , A Nokhodchi, E Supuk, B Conway University of Huddersfield, United Kingdom	340 Intestinal permeation enhancers improve flux of food-derived tripeptides across rat intestinal mucosae <i>in vitro</i> <u>J P Gleeson</u> , S M Ryan, D J Brayden University College Dublin, Ireland
4:00	161 Therapeutic Tumor Lysate Vaccine for B cell lymphoma: Efficacy and Mechanistic properties of Soluble vs Particulate Tumor Lysate Formulations <u>K Roy</u> , J Leleux, J Liu, P Pradhan Professor, U.S.A.	221 Microfluidics liposome formulation and investigation of liposome-cell interactions by Atomic Force Microscopy (AFM) <u>O Kemp</u> , D Lamprou, H M Grant University of Strathclyde, United Kingdom	360 Optimization of the Microencapsulation of Anthocyanins from Haskap Berries (<i>Lonicera caerulea</i> L.) in Ca-Alginate Beads for Oral Delivery <u>G B Celli</u> , A Ghanem, M S Brooks Dalhousie University, Canada

Moorfoot

Respiratory Drug Delivery
Moderator: Claus-Michael Lehr
Session Chairs: Sara Barthold,
Joshuar Reineke

- 3:00 18 **Invited Speaker:** Technological and pharmacological rationale for regional drug delivery
S Senel
Hacettepe Univ, Turkey
- 3:20 19 **Invited Speaker:** Extended Release in the Lungs: Challenges and Opportunities
R Niven
Novartis, U.S.A.
- 3:40 500 The Development of All-Trans Retinoic Acid-Loaded Collagen-Hyaluronic Acid Films for Respiratory Tissue Regeneration
C O'Leary, F J O'Brien, S Cryan
Royal College of Surgeons in Ireland, Ireland
- 3:45 535 A comparison of the pharmacokinetics of an inhaled PEGylated dendrimer between rats and sheep and the role of the pulmonary lymphatic system in absorption from sheep lungs.
L M Kaminskas, G M Ryan, C J Porter, D J Owen
Monash Institute of Pharmaceutical Sciences, Australia
- 3:50 820 Transport Properties of Liposomes for Pulmonary Drug Delivery depend on the Surface Characteristics of the Liposomes and the Atomization Technique used for Nebulization
B Lehofer, P P Jain, F Bloder, R Leber, G Leitinger, L M Marsh, H Olschewski, A Olschewski, R Prassl
Institute of Biophysics, Medical University of Graz, Austria
- 3:55 465 Inhalable nano-embedded microparticles for sustained delivery of cationic antimicrobial peptides: overcoming lung barriers
L d'Angelo, B Casciaro, M Mangoni, A Miro, F Quaglia, F Ungaro
DISTABIF, Second University of Naples, Italy
- 4:00 469 Layered Nanoemulsion-based Mucoadhesive Buccal Systems for Controlled Delivery of Oral Cancer Therapeutics
A Gavin, N Kim, D Wang, B Brownlow, T A Elbayoumi
Midwestern University-Glendale, AZ, U.S.A.

Pentland

Therapeutic Cancer Nanomedicines
Moderators: Lawrence Mayer,
You Han Bae

- 3:00 20 **Invited Speaker:** Development of Fixed-Ratio Anticancer Drug Combination Nanomedicines That Markedly Improve Clinical Efficacy and Survival Outcomes
L Mayer
Celator Pharmaceuticals Inc., U.S.A. and Canada
- 3:30 21 **Invited Speaker:** Clinical Experience Combining CRLX101, an Investigational Nanoparticle-Drug Conjugate, With Other Agents: A Translational Research Program
S Eliasof
Cerulean Pharma, U.S.A.
- 4:00 22 **Invited Speaker:** Clinical Fact Sheet of Cancer Nanomedicine and Revisiting its Working Mechanisms
Y Bae
University of Utah, U.S.A.

Daily Schedule

Tuesday, July 28

7:00 – 8:00 a.m.	Get Up! Get Educated! Trends in Protein Delivery	Moorfoot
7:00 – 8:00 a.m.	Poster Session II Set-Up	Cromdale Hall
7:00 a.m. – 5:00 p.m.	Speaker Preparation Room Open	Conference Organiser's Room
7:00 a.m. – 5:00 p.m.	CRS Registration Open	Strathblane Hall
8:00 – 9:30 a.m.	Plenary Session: María José Alonso	Pentland
9:30 – 10:30 a.m.	Exposition Hall Open	Lennox Suite
9:30 – 10:30 a.m.	Poster Session II Authors Present – Group C (odd numbered)	Cromdale Hall
9:30 a.m. – 4:30 p.m.	Poster Session II Viewing Hours	Cromdale Hall
10:30 – 11:30 a.m.	Chapter Chair Networking Break (by invitation)	Atrium Café
10:30 a.m. – 12:00 p.m.	Mini-Symposium: Next-Generation Vaccine Development and Delivery Technologies	Moorfoot
10:30 a.m. – 12:00 p.m.	Scientific Sessions • <i>In Vivo</i> Nucleic Acid Delivery • Nano-Sized Carriers for Small Molecule Oncology Drugs • Ocular Drug Delivery • Oral Drug Delivery	Tinto Sidlaw Fintry Pentland Carrick
12:00 – 1:00 p.m.	Lunch with the Luminaries*	Lennox Suite
12:00 – 1:30 p.m.	Exposition Hall Open (lunch available for purchase)	Sheraton, Stirling Suite (offsite)
12:00 – 1:30 p.m.	C&DP Luncheon*	Moorfoot
1:30 – 3:00 p.m.	Mini-Symposium: European Technology Platform on Nanomedicine: Translation of Nanomedicines	
1:30 – 3:00 p.m.	Scientific Sessions: • Delivery of Peptides and Proteins • Delivery Science in Cosmetics, Personal Care, and Household Products • Parenteral Delivery Technologies • siRNA and mRNA Delivery	Pentland Tinto Sidlaw Fintry
3:00 – 4:30 p.m.	Exposition Hall Open	Lennox Suite
3:30 – 4:30 p.m.	Poster Session II Authors Present – Group D (even numbered)	Cromdale Hall
4:00 – 5:30 p.m.	College of Fellows Panel: How Can We Make Nanomedicine Work?	Pentland
4:00 – 6:00 p.m.	Exhibit Take-Down	Lennox Suite
4:30 – 5:00 p.m.	Poster Session II Take-Down	Cromdale Hall
5:00 – 6:30 p.m.	Women in Science Networking Event*	Moorfoot
7:30 – 10:00 p.m.	CRS Closing Reception	The Assembly Rooms (offsite)

*Additional registration, payment, and ticket required.

Tuesday

Tuesday Program Highlights

Get Up! Get Educated!

Trends in Protein Delivery

7:00 – 8:00 a.m. • Moorfoot

Chair: Shiew Fern Ng, National University of Malaysia, Malaysia

Speakers: **Edith Mathiowitz**, Brown University, U.S.A.; and **Ulrik Lytt Rahbek**, Novo Nordisk, Denmark

With biologics and vaccines making up a growing share of pharmaceutical pipelines, drug delivery plays an increasingly important role in driving safety, efficacy, and product differentiation. This session will present an introduction to growing opportunities and emerging trends in the delivery of proteins, peptides, and vaccines.

Plenary Speaker

8:00 – 9:30 a.m. • Pentland

Moderator: Andy Lewis, Ipsen, France

Global Efforts and Successes in Needle-Free Peptide Delivery



María José Alonso, University of Santiago de Compostela, Spain, and coordinator of the TRANS-INT European consortium

Peptide molecules, including drugs and antigens, are gaining increasing space in the pharmaceutical industry pipelines. Despite their high potential, difficulties in crossing epithelial barriers have greatly

limited their appropriate exploitation. Globally, there have been significant efforts to overcome these limitations through the design of transmucosal delivery strategies, many relying on the use of nanotechnology. In this plenary presentation, María José Alonso will discuss the results of global, cooperative efforts to accelerate progress on the rational design of peptide nanomedicines: the TRANS-INT European consortium, exploring the potential of nanotechnology for oral peptide delivery; and a Grand Challenges in Global Health Consortium that has resulted in the development of needle-free nanovaccine technologies.

Awards presented prior to the plenary will include the CRS Jorge Heller *Journal of Controlled Release* Outstanding Paper Award to **Richard Price**, University of Virginia, U.S.A., and the *Drug Delivery and Translational Research* Outstanding Paper Award to **Kanjiro Miyata**, University of Tokyo, Japan.

Poster Sessions

Posters are an important element of the CRS Annual Meeting—attendees share groundbreaking scientific achievements and learn about the latest technologies in delivery science.

Posters are displayed on Monday or Tuesday, and authors will be present during the dedicated sessions to discuss their research and answer questions.

Tuesday's poster topics include:

- Delivery Science Cosmetics, Personal Care, and Household Products
- Encapsulation for Industrial Applications
- Micro- and Nanoparticle Delivery
- RNA and DNA Delivery
- Topical and Transdermal Delivery

9:30 – 10:30 a.m. Poster Session II Authors Present – Group C (odd-numbered poster boards)

3:30 – 4:30 p.m. Poster Session II Authors Present – Group D (even-numbered poster boards)

Lunch with the Luminaries*

12:00 – 1:00 p.m. • Carrick

CRS has a long tradition of esteemed leaders in the delivery science community who are active members in our society. CRS has invited two distinguished luminaries to participate in this exciting new event. Space is limited, so register early and join in the lively conversation over the lunch hour.



Vincent H. L. Lee, School of Pharmacy, Faculty of Medicine, Chinese University of Hong Kong, China



Nicholas A. Peppas, University of Texas at Austin, U.S.A.

C&DP Luncheon*

Cosponsored by Coating Place, Inc., The Dow Chemical Company, Microtek Laboratories, Inc., and Ronald T. Dodge Co.

12:00 – 1:30 p.m. • Sheraton, Stirling Suite (offsite)

Join your colleagues for lunch at this annual event hosted by the Consumer & Diversified Products (C&DP) Division. This event connects attendees interested in encapsulation and controlled release research for food, nutraceuticals, personal care, cosmetics, home care, agriculture, textiles, and coatings. All attendees interested in C&DP are welcome to attend!

continued

Tuesday Program Highlights (continued)

College of Fellows Panel

4:00 – 5:30 p.m. • Pentland

How Can We Make Nanomedicine Work?

This special panel discussion is presented by the CRS College of Fellows. The panel this year features College of Fellows members who have direct experience in nanomedicines.

Despite three decades of pursuit, there has been little progress. Do we need to help develop standards, so that studies can be rigorously compared? Can we identify disease and patient characteristics that are more amenable to nanotreatment than others? How should nanodrugs be regulated?



Panel Moderator:
Susan Cady, Meril Ltd., U.S.A.

Panelists:



Nicholas A. Peppas
University of Texas
at Austin, U.S.A.



Edith Mathiowitz
Brown University,
U.S.A.



Samir Mitragotri
University of
California, Santa
Barbara, U.S.A.

Women in Science Networking Event*

5:00 – 6:30 p.m. • Moorfoot

Speaker: Begoña Carreño, Novartis Pharmaceuticals, Switzerland

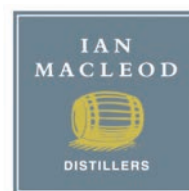
There Is Light on the Dark Side: A Journey Through Big Pharma



Don't miss this popular event, which provides an insightful and informational presentation along with ample time for networking. Join your fellow attendees for wine and hors d'oeuvres and a presentation from Begoña Carreño, Global Head of Search and Evaluation (S&E) in respiratory as well as the venture capital liaison, Novartis Pharmaceuticals.

NEW EVENT – CRS Closing Reception**

7:30 – 10:00 p.m. • The Assembly Rooms (offsite)



The Closing Reception will be held at the Assembly Rooms in Edinburgh, a UNESCO World Heritage site, home of grand assemblies, balls, and musical performances since 1787. Follow the piper into the Music Hall as we kick off our party with the *Address to a Haggis*. Experience tastes of fine whisky from Ian Macleod Distillers, one of the most respected, independent family-owned distillers in Scotland. You will become acquainted with local craft beer during a tasting with Harviestoun Breweries, founded in Central Scotland in 1984. The evening would not be complete without a traditional social dance or ceilidh. Enjoy Scotland's best loved electric ceilidh band, *The Sensational Jimi Shandrix Experience*. When Scots think of a ceilidh they think of great music, fun dancing and good company. Drinks, Scottish canapés and fork food will be served.

**The closing reception is included in the registration fee with regular, student, and postdoc registration. A limited number of tickets are available for other registration types. Early purchase is encouraged.

*Additional registration, payment, and ticket required.

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	<i>In Vivo</i> Nucleic Acid Delivery Moderator: Ernst Wagner Session Chairs: Ronit Satchi-Fainaro, Koen Raemdonck	Nano-Sized Carriers for Small Molecule Oncology Drugs Moderator: Mark Tracy Session Chairs: Scott Eliasof, Khaled Greish	Ocular Drug Delivery Moderator: Vince Lee Session Chairs: Todd Hoare, Rocio Herrero-Vanrell
	INVITED SPEAKERS		
10:30	23 Invited Speaker: <u>U Griesenbach</u>	25 Invited Speaker: Nanotechnology Approaches for Personalized Treatment of Cancer <u>T Minko</u>, A Kuzmov, J Sapiezynski, O Taratula, V Shah, M Zhang, O B Garbuzenko, S R Pine, L Rodriguez-Rodriguez Rutgers Univ, U.S.A.	27 Invited Speaker: Non-viral gene therapy for eye diseases: Which perspectives? How to translate to the clinic? <u>F F Behar-Cohen</u> Hospital Ophtalmique Jules-Gonin, France
10:50	24 Invited Speaker: Genome Editing with Zinc Finger Nucleases <u>M C Holmes</u> Sangamo BioSciences, U.S.A.	26 Invited Speaker: <u>A Lieber</u>	28 Invited Speaker: Development of Drug Delivery Systems for the Eye: Focus and Team <u>E de Juan</u> ForSight Labs, U.S.A.
	RESEARCH HIGHLIGHT TALKS AND MODERATED DISCUSSION		
11:10	915 Ultrasound-mediated gene transfer to the brain J Y Tan, D Sellers, H Wei, N Coulsen, D O Maris, P Mourad, P J Horner, <u>S H Pun</u> University of Washington, U.S.A.	651 Extracellular vesicles as smart carriers for small molecule drugs <u>G Fuhrmann</u>, A Serio, M M Stevens Imperial College, Department of Materials, Department of Bioengineering, United Kingdom	434 Clinical and Preclinical Demonstration of Continuous and Adjustable Methotrexate Delivery from a Novel Refillable "Port Delivery System" Implant <u>S R Erickson</u>, R Campbell, K Farinas, J Horvath, J M Stewart ForSight Vision4, U.S.A.
11:15	881 Gene Delivery to the Brain Using Brain Penetrating DNA Nanoparticles P Mastorakos, C Zhang, E Song, S Berry, <u>J Suk</u>, J Hanes Johns Hopkins University Medical School, U.S.A.	541 A novel antitumour strategy using bidirectional autophagic vesicles accumulation via combined treatment with TAT-Bec1 and liposomal hydroxychloroquine Y Wang, Y Liu, <u>Q He</u> Key Laboratory of Drug Targeting and Drug Delivery Systems, West China School of Pharmacy, Sichuan University, China	431 Antioxidant Activity and Real-Time Imaging of HPMC-coated Cerium Oxide Nanoparticles: New Modality for Age-Related Cataract <u>A A Al-kinani</u>, S Patel, A Vangala, G Calabrese, B Pierscionek, D Naughton, R G Alany School of Pharmacy and Chemistry, Kingston University London, United Kingdom
11:20	853 Cell Derived Nano-Ghosts: A Novel Targeted Gene Delivery System For Cancer Therapy <u>L Kaneti</u>, M Machluf Technion, Israeli Institute of Technology, Israel	815 Theranostic Barcoded Nanoparticles for Personalized Cancer Medicine <u>Z Yaari</u> Israel Institute of Technology, Israel	437 Corneal ulcer amelioration in response to <i>in situ</i> gelling naltrexone hydrochloride (NTX) films: pharmaceutical formulation and clinical evaluation <u>H Abdelkader</u>, B Pierscionek, H Mohharam, R Abdelkader Kingston University London, United Kingdom
11:25	856 Chitosan coated PLGA Nanoparticles for Pulmonary Delivery of mRNA encoding a Zinc Finger Nuclease: An in-vivo proof of concept study for somatic genome editing <u>B Loretz</u>, E Malaeksefat, A J Mahiny, A Dewerth, L E Mays, M Alkhaled, B Mothes, J Rottenberger, D M Brosch, P Reautschnig, P Surapolchai, F Zeyer, A Schams, M Carevic, M Bakele, M Griese, M Schwab, B Nürnberg, S Beer-Hammer, R Handgretinger, D Hartl, M S Kormann, C Lehr Helmholtz-Institute for Pharmaceutical Research Saarland (HIPS), Saarland University, Germany	823 Tumor Targeting Efficiency of Hyaluronic acid Based Micelle Containing Paclitaxel <u>F Dorkoosh</u>, E Saadat, M GholamiTehran University of Medical Sciences, Iran	425 A Physically-Associative, Shear-Responsive Ophthalmic Hydrogel for Anterior and Posterior Segment Drug Delivery P Sheikholeslami, B Muirhead, D Baek, H Wang, X Zhao, D Sivakumaran, S Boyd, H Sheardown, <u>T Hoare</u> McMaster University, Canada
11:30	891 Mannosylated Polyion Complexes for <i>In Vivo</i> Gene Delivery into CD11c+ Dendritic Cells L Raviv, M Jaron-Mendelson, M Golan, <u>A David</u> Department of Clinical Biochemistry and Pharmacology, Faculty of Health Sciences, Ben-Gurion University of the Negev, Israel	546 A novel vincristine submicron emulsion system with enhanced antitumor effect <u>T Zhang</u>, T Gong, Z Zhang West China School of Pharmacy, Sichuan University, China	478 Patterned Nanoporous Polypyrrole for Tunable Ocular Drug Delivery <u>A Seyfoddin</u>, H Zhang, S Moulton, M Higgins, I D Rupenthal, G I Waterhouse School of Pharmacy, University of Auckland, New Zealand

Mini-Symposia • Tuesday Morning

Pentland

Oral Drug Delivery
Moderator: Randy Mrsny
Session Chairs: Rod Walker, Daniel Kirby

- 10:30 29 **Invited Speaker: S Gaisford**
- 10:50 30 **Invited Speaker: Oral Fixed Dose Combination Products**
D Desai
Bristol-Myers Squibb Inc., U.S.A.
- 11:10 341 Investigating the barrier properties of an intestinal co-culture model of CCD-18co intestinal sub-epithelial myofibroblasts and Caco-2 intestinal epithelial cells
J D Patient
University of Nottingham, United Kingdom
- 11:15 345 Lipid co-administration that promotes incorporation into intestinal lipoproteins is critical for efficient lymphatic transport of a bio-mimetic triglyceride prodrug
S Han, L Hu, T Quach, J S Simpson, N L Trevaskis, C J Porter
Monash University, Australia
- 11:20 328 Gastroretentive Dosage Form for Once Daily (QD) Dosing of a Compound with a Narrow Absorption Window
P Gupta, S Patel, W Lin, L C-Lens, M Rizk, J McDermott, A Connor, R Krishna, R L Smith
Merck and Co., U.S.A.
- 11:25 366 Polymeric microcontainers improve oral bioavailability of a poorly soluble drug
L Hagner Nielsen, A Melero, S Sylvest Keller, T Rades, A Müllertz, A Boisen
Department of Micro- and Nanotechnology, Technical University of Denmark, Denmark
- 11:30 267 A Case Study - Formulation Development for Carcinogenicity Study
Z Nazir, K Hill, S Horner
AstraZeneca, United Kingdom

Moorfoot

Next-Generation Vaccine Development and Delivery Technologies
Moderators: Sevda Senel, David Brayden

- 10:30 31 **Invited Speaker: Enhancing Vaccine Efficacy Through Novel Vaccines and Delivery Technology**
L Babiuk
University of Alberta, Canada
- 11:00 32 **Invited Speaker: The Next Generation of Vaccine Adjuvants**
D O'Hagan
Novartis Vaccines, U.S.A.
- 11:30 33 **Invited Speaker: P Marsh**
PHE Porton, United Kingdom

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Delivery of Peptides and Proteins
Moderator: Alexander Florence
Session Chairs: Richard Gemeinhart

Delivery Science in Cosmetics, Personal Care, and Household Products
Moderator: John Brahms
Session Chairs: Nicole Papen-Botterhuis, Zhibing Zhang

Parenteral Delivery Technologies
Moderator: Wim Hennink
Session Chairs: Bill Lambert, Diane Burgess

INVITED SPEAKERS

1:30	34 Invited Speaker: Cell-Penetrating Peptides for Oral Delivery of Peptide and Protein Drugs N Kamei , M Takeda-Morishita Kobe Gakuin University, Japan	36 Invited Speaker: Encapsulation of oil in Ca-alginate microcapsules by inverse gelation technique D Poncelet GEPEA, France	38 Invited Speaker: Controlled Release of an Old Chemotherapeutic Using a Low-Temperature Thermal Sensitive Liposome: A New Paradigm for Drug Release in the Blood Stream of Warmed Tumors D Needham Duke University and University Southern Denmark, U.S.A.
1:50	35 Invited Speaker: Advances in Oral GLP-1 Delivery U L Rahbek Novo Nordisk A/S, Denmark	37 Invited Speaker: Engineering Controlled Fragrance Release Systems for Superior Performance Y Lei , L Xu, M Popplewell, J Brahmas International Flavors and Fragrance, U.S.A.	39 Invited Speaker: Titania Nanoporous Membranes: Enabling Extended, Constant Delivery from a Rice-Grain-Sized Device A D Mendelsohn , K E Fischer Nano Precision Medical, Inc., U.S.A.

RESEARCH HIGHLIGHT TALKS AND MODERATED DISCUSSION

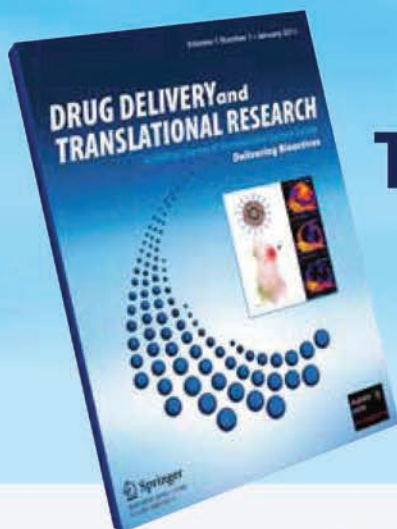
2:10	61 A New Structural Design of a Closed-Loop Insulin Delivery Implant Extends the Duration of Insulin Efficacy in a Type 1 Diabetic Rat Model by Impeding Immune Cell Infiltration J Li , M K Chu, C R Gordijo, A Giacca, M Lohn, O Plettenburg, X Wu Leslie L. Dan Faculty of Pharmacy, University of Toronto, Canada	508 Controlled Release of Encapsulated Bioactive Volatiles by Rupture of the Capsule Wall through the Light-Induced Generation of a Gas D L Berthier , N Paret, A Herrmann, A Trachsel Firmenich SA, Switzerland	392 An injectable liquid crystal system for sustained delivery of entecavir M Joo , M Ki, J Lim, S An, E Park CKD Research Institute, South Korea
2:15	131 Parkinsonian monkeys showed brain structural and functional recovery following local delivery of microencapsulated GDNF E Garbayo , H Lana, G D'Addario, M Carmona, I Marcilla, J Lanciego, M Luquin, M Blanco-Prieto Pharmacy and Pharmaceutical Technology Department, University of Navarra, Spain	507 Coffee silverskin as new cosmetic ingredient: in vitro and in vivo evaluation F Rodrigues , C Pereira, F B Pimentel, R C Alves, M Ferreira, B Sarmento, M Amaral, M Oliveira Requimte, Faculty of Pharmacy, University of Porto, Portugal	411 Novel Methods for the Evaluation of Drug Release from Drug Eluting Beads T S Swaine , P Garcia, Y Tang University of Huddersfield, Biocompatibles UK Ltd, United Kingdom
2:20	144 <i>Pseudomonas</i> Exotoxin A as a drug carrier for oral protein delivery F Laurent , J Mackay, R Mrsny Univ of Bath, United Kingdom	515 Visualization and Quantification of Delivery in Hair Care Products D J Scurr , M R Alexander, M C Davies University of Nottingham, United Kingdom	397 Development of an Extended-Release Leuprolide Formulation using the FormEZE Technology W Deng , B Perkins, B Hudson, C Davis, K Burton
2:25	160 The Use of Inkjet Printing for Dosing Biomacromolecular Actives in Drug Delivery Systems M Montenegro-Nicolini University of Chile, Chile	517 Controlled Release of Menthol from Polycaprolactone C M Baker , N Jain, K Munoz, E Atherton, E Mathiowitz Brown University, U.S.A.	391 A Novel Fluorescent Assay to Determine the Influence of Oil Type and Surface Composition on Lipid Emulsion Lipoprotein Lipase Mediated Metabolism P W Dougall University of Nottingham, United Kingdom
2:30	81 Creation of human TNFR1-selective antagonistic TNF mutants-using phage display to develop novel anti-inflammatory biodrugs D Ando , H Kamada, M Inoue, K Nagano, Y Mukai, Y Tsutsumi, S Tsunoda National Institute of Biomedical Innovation, Japan	509 Criopass Laser Efficiency as an Enhancer of Caffeine and Caffeisilane C permeation: 3D Human Skin Equivalent as a Model Barrier P S Lopes , D P Luco, P G Oliveira, I M Rufino, E B Herbst, G Grecco, M B Mathor, H D Silva, M A Andreo, V R Leite-Silva Federal University of São Paulo, Brazil	418 Questioning the rate-limiting drug release and absorption mechanisms from an intramuscular sustained-release nano-/microsuspension: the effect of local macrophage depletion N Darville , M van Heerden, D Mariën, M De Meulder, S Rossenu, A Vermeulen, P Sterkens, S De Jonghe, P Annaert, g Van den Mooter Drug Delivery and Disposition - KU Leuven, Belgium

Fintry

siRNA and mRNA Delivery Moderator: Jeff Cleland Session Chairs: Kathryn Whitehead, Harry Parekh	
1:30	40 Invited Speaker: Delivery of siRNA with nanoparticles based on PEG-PLA block copolymer for cancer therapy <u>J Wang</u> , C Xu, A Liu, C Sun, X Yang Univ of Science and Technology, China
1:50	41 Invited Speaker: Advances in Polymer Conjugates Designed for siRNA Delivery <u>S E Barrett</u> , R S Burke, R M Garbaccio, E N Guidry, B J Howell, E A Kemp, A H Latham, A M Leone, S L Colletti Merck & Co., Inc, U.S.A.
2:10	893 Peptide Nanofiber Vectors of siRNA for Glioblastoma Treatment <u>M Mazza</u> , L O'Donnell, K Kostarelos University of Manchester, United Kingdom
2:15	899 Reciprocal dormancy-promoting nanomedicine altering EGFR and TSP-1 for the management of glioblastoma S Ferber, G Tiram, E Yavin, N Almog, J Henkin, M Calderon, R Haag, <u>R Satchi-Fainaro</u> Tel Aviv University, Israel
2:20	845 anti-IL8 siRNA Nanoparticles Induce Knockdown in Epithelial Cells- <i>in vitro</i> and <i>in vivo</i> <u>J Ramsey</u> , A Hibbitts, R MacLoughlin, J Barlow, S Cryan School of Pharmacy, Ireland
2:25	875 Efficient Expression of mRNA PEG-Peptide Polyplexes in Liver <u>K Rice</u> Department of Pharmaceutical Science, College of Pharmacy, University of Iowa, U.S.A.
2:30	911 Targeted mitochondrial delivery of functional nucleic acids using MITO-Porter <u>E Kawamura</u> , Y Yamada, H Harashima Faculty of Pharmaceutical Sciences, Hokkaido University, Japan

Moorfoot

European Technology Platform on Nanomedicine: Translation of Nanomedicines Moderators: Patrick Boisseau, Ruth Schmid	
1:30	42 Invited Speaker: <u>L Good</u> Tecrea Ltd, United Kingdom
2:00	43 Invited Speaker: <u>D Palmer</u> Midatech Pharma, United Kingdom
2:30	44 Invited Speaker: Nanomedicine in Ophthalmology: Myriocin loaded Lipid Nanoparticles for therapy in Retinitis Pigmentosa <u>P Gasco</u> Nanovector, Italy



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Exclusively focused on translational aspects of drug delivery, **Drug Delivery and Translational Research (DDTR)** provides a unique forum for publication of high-quality research that focuses exclusively on translational aspects of drug delivery. Rationally developed effective delivery systems can potentially influence clinical outcomes in different disease conditions. **DDTR** provides a focal point for publication of science and technology of delivering bioactives.

DDTR welcomes research focused on the following areas of translational drug delivery research:

- ▶ Designing and developing novel drug delivery systems, with a focus on their application to disease conditions
- ▶ Preclinical and clinical data related to drug delivery systems
- ▶ Drug distribution, pharmacokinetics, clearance, with drug delivery systems as compared to traditional dosing to demonstrate beneficial outcomes
- ▶ Short-term and long-term biocompatibility of drug delivery systems, host response
- ▶ Biomaterials with growth factors for stem-cell differentiation in regenerative medicine and tissue engineering
- ▶ Image-guided drug therapy
- ▶ Nanomedicine
- ▶ Devices for drug delivery and drug/device combination products

DDTR presents full-length papers, reviews, communications, methods, editorials, and more. For full author instructions, please visit the DDTR journal homepage at springer.com.

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Daily Schedule

Wednesday, July 29

7:30 a.m. – 12:00 p.m.	CRS Registration Open	Strathblane Hall
8:00 – 9:30 a.m.	Mini-Symposium: Cost-Effective Encapsulation for Industrial Applications: Limitations and Solutions	Moorfoot
8:00 – 9:30 a.m.	Scientific Sessions • Drug Delivery in Tissue Engineering • Formulating Oral Solid Dosage Forms to Enhance Drug Delivery • Nanocarriers for Combined Delivery • Nanosystems for Non-Oncology Drug Delivery	Sidlaw Tinto
9:45 – 11:00 a.m.	Plenary Session: Renata Pasqualini	Pentland Fintry Pentland

**Additional registration, payment, and ticket required.*

Wednesday Program Highlights

Plenary

9:45 – 11:00 a.m. • Pentland

Moderator: Yvonne Perrie, Aston University, United Kingdom

Ligand-Directed Therapy and Molecular Imaging Based on In Vivo Phage Display Technology



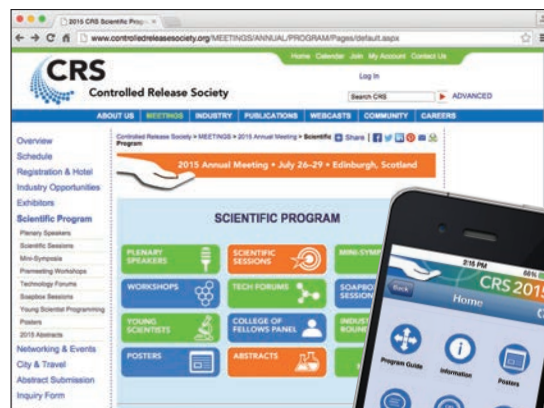
Renata Pasqualini, University of New Mexico Cancer Center, U.S.A.

In this plenary presentation, Dr. Pasqualini will discuss the development of *in vivo* phage display, a functional peptide screening established in animal models and later in patients. She will present research on how isolation of homing

peptides enables subsequent identification of tissue-specific receptors and how systematic implementation of this strategy will lead to the construction of a comprehensive map of vascular markers in each organ, tissue, or disease. Long term, the broader vision of her research is a large-scale mapping of receptors in human vasculature toward a new ligand-directed pharmacology.

Prior to the plenary, outgoing CRS Board members will be recognized.

Looking for the Abstracts?



CRS MEETING APP

Download the app to your mobile device, or use the desktop app website: mobileapp.controlledrelease.org. Abstracts are available in the Posters and the Program Guide session details.

CRS WEBSITE

The abstracts are available within the CRS meeting website and can be accessed using your CRS username and password.

Sidlaw

Tinto

Fintry

	Drug Delivery in Tissue Engineering Moderator: Richard Gemeinhart Session Chairs: Michael Doschak, Hyunjoon Kong	Formulating Oral Solid Dosage Forms to Enhance Oral Drug Delivery Moderator: Gavin Andrews Session Chairs: Mark McAllister, Ben Boyd	Nano-Systems for Non-Oncology Drug Delivery Moderator: Hamid Ghandehari Session Chairs: Andrew Parker, Yoon Yeo
INVITED SPEAKERS			
8:00	45 Invited Speaker: Designer Nanoneedles for Regenerative Medicine and Biosensing <u>M Stevens</u> Imperial College, United Kingdom	47 Invited Speaker: Modifying the solid state of drugs to enhance oral drug delivery <u>T Rades</u> , H Grohgan, P Priemel, A Mullertz, K Loebmann Univ of Copenhagen, Denmark	51 Invited Speaker: Macromolecular Dexamethasone Prodrug Prevents And Resolves Lupus Nephritis With Reduced Systemic Toxicities <u>D Wang</u> University of Nebraska Medical Center, U.S.A.
8:20	46 Invited Speaker: Collagen-Based Scaffolds For Therapeutic Delivery To Enhance Tissue Regeneration <u>F J O'Brien</u> Royal College of Surgeons in Ireland, Ireland	48 Invited Speaker: The effect of plasticizer used in hot melt extrusion on drug product intermediate properties <u>S Page</u> F. Hoffmann-La Roche Ltd, Switzerland	52 Invited Speaker: Liposomal drug delivery to atherosclerotic lesions in cardiovascular patients <u>G Storm</u> , J M Metselaar, M E Lobatto, Z Y Fayad, E S Stroes, W J Mulder Utrecht University and University of Twente, Netherlands
RESEARCH HIGHLIGHT TALKS AND MODERATED DISCUSSION			
8:40	96 Engineering a Bioartificial Pancreas: Tuning Device Geometry Prevents Foreign Body Immune Responses and Fibrosis to Enable Prolonged Efficacy in Diabetic Rodents <u>O Veiseli</u> , R Langer, D Anderson David H. Koch Institute for Integrative Cancer Research at MIT, U.S.A.	297 Design of Modified Release Multi-Particulate Floating Drug Delivery System for Levodopa and Carbidopa Combination Based on a Multilayer Structure <u>S Y Charde</u> , P P Raut Birla Inst of Technology and Science Pilani, India	772 Raltegravir Prodrugs for Improved Nanoparticle Delivery <u>I T Suydam</u> , M E Ebner, A M Bever, Y Jiang, K A Woodrow Seattle University, U.S.A.
8:45	129 Novel Bone Targeting Parathyroid Hormone Analogues Impart Significantly Improved Peptide Hormone Delivery and Efficacy upon Osteoporotic Bone Surfaces <u>Y Yang</u> , A Panahifar, K Tang, F Wuest, M R Doschak Pharmaceutical Orthopaedic Research Lab, Faculty of Pharmacy and Pharmaceutical Sciences, University of Alberta, Canada	339 Infacort® - Development and Clinical Evaluation of a Taste Masked Multiparticulate Oral Hydrocortisone Formulation for Paediatric Use <u>D N Margetson</u> , G Neal, R Ross, H Huatan, D Eckland, D Digweed, A Grave, A Foerg, N Poellinger, M J Whitaker Diurnal Ltd, United Kingdom	589 Comparative study of curcumin-loaded lipid-based nanocarriers for inflammatory bowel disease treatment <u>A Belouqui</u> , P B Memvanga, R Coco, S Reimondez-Troitino, M Alhouayek, A Staub, G G Muccioli, M J Alonso, N Csaba, M de la Fuente, V Preat Universite Catholique de Louvain, Belgium
8:50	857 Chitosan-pDNA Nanoparticles Facilitate Controlled Gene Delivery on Collagen Scaffolds for Orthopaedic Tissue Engineering Applications <u>R M Raftery</u> , C M Curtin, S Cryan, F J O'Brien Tissue Engineering Research Group, Royal College of Surgeons, Ireland,	333 Impact of monoacyl phosphatidylcholine on the nanoemulsification capacity of self-nanoemulsifying drug delivery systems <u>T Tran</u> , X Xi, T Rades, A Mullertz University of Copenhagen, Denmark	703 Macromolecular Prodrugs of AZT and Ribavirin - Towards a Treatment of Infection with HIV and HCV. <u>K Zuwala</u> , A A S. Smith, B M Wohl, M B L. Kryger, P Ruiz-Sanchis, C Guerrero-Sanchez, A Postma, M Tolstrup, A N Zelikin Department of Infectious Diseases, Aarhus University Hospital, Denmark
8:55	137 Polymeric electrospun scaffolds: Neuregulin encapsulation and biocompatibility studies in a rat model of myocardial ischemia T Simon-Yarza, A Rossi, K Heffels, E Garbayo, F Prosper, J Groll, <u>M J Blanco-Prieto</u> University of Navarra, Spain	299 Development of local controlled-release fenretinide as a chemopreventive therapy for oral squamous cell carcinoma (OSCC) <u>K J Nieto</u> , S Schwendeman, S Mallory University of Michigan, U.S.A.	704 Macrophages targeting with low molecular weight heparin-loaded eudragit nanoparticles for the treatment of ulcerative colitis <u>T Yazeji</u> University of Bonn, Germany
9:00	105 Identification of a Lung Carcinoma-specific Peptide for <i>in vivo</i> Targeting <u>J Yu</u> , M Oh, M Yang, Y Nam KAIST, South Korea	383 The synergistic effect of silica and polymer in establishing improved lipid-based solid dosage forms for poorly water soluble drugs <u>C A Prestidge</u> University of South Australia, Australia	795 Suppression of Inflammatory Cytokines with "Eat-me" Signal Bearing Particles <u>Y Katayama</u> , P Kumar, M Hosain, D Funamoto, A Kishimura, T Mori Kyushu University, Japan

Pentland

Nanocarriers for Combined Delivery
Moderator: Ronit Satchi-Fainaro
Session Chairs: Rohit Kolhatkar,
Sei-Kwang Hahn

- 8:00 49 **Invited Speaker:** Dermatan Sulfate, a Silent Actor of a Ternary Gene Delivery System
Y Yeo, B Kim, S Kim, I Kwon
Purdue University, U.S.A.
- 8:20 50 **Invited Speaker:** An Injectable 3-drug Nanotherapeutic for Disseminated Angiosarcoma
G S Kwon
University of Wisconsin, U.S.A.
- 8:40 680 *In vivo* evaluation of a novel chemo-immunotherapeutic strategy to treat glioblastoma: paclitaxel and CpG loaded lipid nanocapsules
G Lollo, M Vincent, G Ullio Gamboa, L Lemaire, F Franconi, D Couez, J Benoit
LUNAM University— Micro et Nanomédecines Biomimétiques, France
- 8:45 713 Microfluidic Fabrication of a Stimulus Responsive Hybrid Nanocomposite for Antitumoral Applications
B Herranz Blanco, D Liu, E Mäkila, M Shahbazi, E Ginestar Nadal, H Zhang, V Aseyev, V Balasubramanian, J Salonen, J Hirvonen, H A Santos
University of Helsinki, Finland
- 8:50 588 Combined treatment with CXCR4 antagonist and liposomal doxorubicin for enhancing antitumor and anti-metastasis efficiency
L Mei, Y Liu, Q He
Key Laboratory of Drug Targeting and Drug Delivery Systems, West China School of Pharmacy, Sichuan University, China
- 8:55 742 Paclitaxel-Lapatinib loaded F127 Pluronic micelles; an in vitro- in vivo evaluation
P Dehghankelishadi, F Dorkoosh, E Saadat, F Ravar
Department of Pharmaceutics, Tehran University of Medical Science, Iran
- 9:00 539 A Lipid Nanoemulsion System for Concurrent Delivery of Chemotherapeutics and Bromotetrandrine (W198) to Overcome Multidrug Resistance in Breast Cancer Therapy
X Cao, T Gong, Z Zhang, Y Fu
Sichuan University, China

Moorfoot

Cost-Effective Encapsulation for Industrial Applications: Limitations and Solutions
Moderators: Igor Bodnar, Doug Dale

- 8:00 53 **Invited Speaker:** Improved Formulation for Cellular Uptake of Peptides in the Skin
F Suter, D Schmid, F Zuelli
Mibelle Biochemistry, Switzerland
- 8:30 54 **Invited Speaker:** Cost effective encapsulation of flavors
J Weissbrodt, I Reiss
Symrise AG, Germany
- 9:00 55 **Invited Speaker:** Cost effective encapsulation of active ingredients in the agricultural chemical and microbial control industries
I A Tomlinson, L Liu, M Zhao, R E Boucher, F Zeng, T Ghosh
Dow Advanced Materials, U.S.A.

2015 CRS Posters

Scientific posters are an essential element of the CRS Annual Meeting & Exposition. The display of posters allows annual meeting attendees an excellent opportunity to share with one another important scientific achievements and learn the newest technologies in delivery science on a personal basis. Each submitted poster abstract is peer reviewed and chosen based upon predetermined selection criteria.

Posters will be on display in Cromdale Hall during two poster sessions and authors will be present during one of four time slots. Photographing posters is not permitted.

Poster Sessions (authors present)

Poster Session I – Group A	Monday, July 27	9:30 – 10:30 a.m.
Poster Session I – Group B	Monday, July 27	5:00 – 6:00 p.m.
Poster Session II – Group C	Tuesday, July 28	9:30 – 10:30 a.m.
Poster Session II – Group D	Tuesday, July 28	3:30 – 4:30 p.m.

Delivery of Proteins, Peptides, and Vaccines

- 57 A liquid-in-liquid multi-compartmental system for the oral delivery of subunit vaccines to treat colorectal cancer; J Liao; Session 1, Group A
- 59 A microscopic-enabled microfluidic device for transport of nanoparticles in intestinal mucus; S Bhattacharjee; Session 1, Group A
- 60 A Multisystem to Orally Co-deliver Glucagon-like Peptide-1 and Dipeptidyl Peptidase 4 Inhibitor for Type 2 Diabetes Mellitus Therapy; F Araújo; Session 1, Group B
- 61 A New Structural Design of a Closed-Loop Insulin Delivery Implant Extends the Duration of Insulin Efficacy in a Type 1 Diabetic Rat Model by Impeding Immune Cell Infiltration; J Li; Session 1, Group A
- 64 A Supramolecular Carrier for Regulating Oral Absorption Profile of Insulin; K Kawakami; Session 1, Group B
- 67 Active transport and lysosome-evading dual functional nanocomplexes for oral insulin delivery; W Fan; Session 1, Group A
- 68 Alteration of carbon nanotube's length and surface charge affects antigen uptake and immune response induced by dendritic cell *in vitro*; H Hassan; Session 1, Group B
- 69 Aqueous Remote Loading of Cationic Peptides in PLGA microspheres; M Giles; Session 1, Group A
- 70 BBB-shuttle peptides for CNS drug delivery; M Teixido; Session 1, Group B
- 72 Bioactivity of Liposomal Antimicrobial Peptides in Herpes Virus *In Vitro* Models; G Golomb; Session 1, Group B
- 73 Biomimetically Engineered Demi-bacteria Potentiate Vaccination Against cancer ; W Wei; Session 1, Group A
- 74 Brain Delivery of Peptide Drugs via Intranasal Administration for Alzheimer's Disease Treatment; N Kamei; Session 1, Group B
- 75 Comparative *in vitro* and *in vivo* analysis of nanovaccine - immune cell interactions; N Csaba; Session 1, Group A
- 77 Comparison the Pharmacokinetic Profiles between Monomeric and Oligomeric Transferrin; H Wang; Session 1, Group A
- 78 Controlled Release of biologicals from Microspheres Using Layer-by-Layer (LbL) Technology; O Sakr; Session 1, Group B
- 79 Controlled Release of Biologicals from Core-Sheath Electrospun Fibers with High Loading; Q Pham; Session 1, Group A
- 81 Creation of human TNFR1-selective antagonistic TNF mutants using phage display to develop novel anti-inflammatory biodrugs; D Ando; Session 1, Group A
- 82 Dendritic cell subsets interact with pathogen mimicking particles in a size dependent manner; K Roy; Session 1, Group B
- 83 Developing recombinant single-chain Fc dimer fusion proteins for protein drug delivery; L Zhou; Session 1, Group A
- 86 Development and characterization of aqueous core nanocapsules designed for protein oral delivery; H Malhaire; Session 1, Group B
- 87 Development and evaluation of a monoclonal antibody against Eph receptor A10 for novel molecularly targeted therapy of breast cancer; K Nagano; Session 1, Group A
- 88 Development of a novel enzymatic nano-reactor for the application of biodegradation; H Tang; Session 1, Group B
- 89 Development of a personalized treatment vaccination for melanoma; B DSouza; Session 1, Group A
- 90 Development of Alendronate and Heparin Incorporated Atelocollagen Matrices for Controlling BMP-2 Release and Osteogenic Differentiation; S Park; Session 1, Group B

- 91 Development of Novel Immunoliposome for the Enhancement of Antibody-Based Therapy; T Niwa; Session 1, Group A
- 93 Dual functional Collagen Nerve Conduits, Endowed with Collagen Binding Neurotrophic Factor and Guidance Fibers, Trigger Axonal Outgrowth; B Gander; Session 1, Group A
- 94 Electrosprayed pp65489-503 peptide-loaded PLGA-nanoparticles enhance proliferation of antigen-specific cytotoxic T cells as compared to non-encapsulated peptide; B Kandil; Session 1, Group B
- 96 Engineering a Bioartificial Pancreas: Tuning Device Geometry Prevents Foreign Body Immune Responses and Fibrosis to Enable Prolonged Efficacy in Diabetic Rodents; O Veisheh; Session 1, Group B
- 97 Enhanced Paracellular Transport of Insulin Can Be Achieved Via Transient Induction of Myosin Light Chain Phosphorylation; A Taverner; Session 1, Group A
- 98 Enhanced uptake and transports of bovine lactoferrin in human intestinal Caco-2 cells by pectin and chitosan modified solid lipid particles; J Wen; Session 1, Group B
- 100 Enzymatic Bio-surgery: replacing surgical blades with tissue-cleaving enzymes; A Zinger; Session 1, Group B
- 101 Fabrication of Double-wall Microparticles with Protein Loaded in the Hydrophilic Gel Core Using Coaxial Electrohydrodynamic Atomization; C Wang; Session 1, Group A
- 102 Formulation and Characterization of Microemulsion System for Oral Peptidic Delivery; S SHARMA; Session 1, Group B
- 103 HER2-Targeted Hepatitis B Virus Core Particle as Nanocarriers to Treat Cancer; K Al-Jamal; Session 1, Group A
- 104 Highly Efficient Delivery of Functional Cargoes by the Synergistic Effect of GAG Binding Motifs and Cell-Penetrating Peptides; J Dixon; Session 1, Group B
- 105 Identification of a Lung Carcinoma-specific Peptide for *in vivo* Targeting; J Yu; Session 1, Group A
- 106 Identification of Potential Binding Partners for the N-Terminal Domain of Occludin; T Ikem; Session 1, Group B
- 107 Immobilized transglutaminase for enzymatic protein PEGylation.; A Grigoletto; Session 1, Group A
- 108 Impact of Freeze-drying and Cryoprotectant Loading on the Stability of Insulin Loaded into PLGA Nanoparticles; P Fonte; Session 1, Group B
- 110 *In vivo* evidence of nasal vaccination with novel poly (β -amino ester)-poly (lactic-co-glycolic acid) nanoparticles; H. Alpar; Session 1, Group B
- 112 Injectable PLGA Implants for Controlled Release of Bevacizumab; R Chang; Session 1, Group B
- 114 Internalization of radical-scavenging metallothionein for cytoprotection of transplanted pancreatic islets from xenogeneic immune reactions; M Kim; Session 1, Group B
- 115 Intestinal regional localisation of coated SmPill® beads in rats: proof of principle using X-ray imaging; T Aguirre; Session 1, Group A
- 116 Intranasal Delivery of mRNA Vaccine Using Cyclodextrin-PEI As A Carrier Elicits Both Systemic and Mucosal Immunity; M Li; Session 1, Group B
- 118 Investigating of Protein-Coated Nanoparticles for Controlled Release Films; J McConville; Session 1, Group B
- 119 Investigation of the effect of thermal and shear stress on the stability of the monoclonal antibody Infliximab; J Alsaddique; Session 1, Group A
- 120 Liposome-based vaccines for lung cancer treatment; C Loira Pastoriza; Session 1, Group B

- 121 Local Delivery of Brain-Derived Neurotrophic Factor to the Brain For Functional Recovery Following Stroke; J Obermeyer; Session 1, Group A
- 122 Measles and Rubella Vaccination Using a Microneedle Patch; J Joyce; Session 1, Group B
- 123 Nanoencapsulation of an hTS inhibitor octapeptide against ovarian cancer in solid lipid matrix; V Iannucci; Session 1, Group A
- 124 Nano-polyplex MK2 Inhibitory Peptide Delivery Inhibits Vascular Graft Intimal Hyperplasia by Blocking Inflammation and Maintaining the Contractile VSMC Phenotype; T Werfel; Session 1, Group B
- 125 Nanosized Phytosomes for Ocular Delivery of the Histidine Dipeptide Drug L-Carnosine; H Abdelkader; Session 1, Group A
- 126 Needle-Free Transdermal Vaccine Delivery Systems Using Hyaluronate-Vaccine Conjugates; S Hahn; Session 1, Group B
- 127 New Intrinsically Enteric Two-Piece Capsule Drug Delivery System A Sivert; Session 1, Group A
- 128 Novel approach to enhance the oral absorption of peptide and protein drugs through an endogenous pathway; K Almansour; Session 1, Group B
- 129 Novel Bone Targeting Parathyroid Hormone Analogues Impart Significantly Improved Peptide Hormone Delivery and Efficacy upon Osteoporotic Bone Surfaces; Y Yang; Session 1, Group A
- 130 Novel in vitro instrument for estimating formulation performance of subcutaneously administered therapeutics; K Box; Session 1, Group B
- 131 Parkinsonian monkeys showed brain structural and functional recovery following local delivery of microencapsulated GDNF; E Garbayo; Session 1, Group A
- 133 PEGylated interferon shows differences in plasma clearance and bioavailability between male and female mice and between female immunocompetent C57Bl/6J and athymic nude mice; L Kaminskas; Session 1, Group A
- 134 PEGylated TRAIL as an efficient biotherapeutics on rheumatoid arthritis model; S Lim; Session 1, Group B
- 135 Peptide Post Encapsulation onto Porous Polymeric and Inorganic Microparticles; s eilleia; Session 1, Group A
- 136 Photocrosslinked microgels for oral delivery of macromolecular based-therapeutics; P Marizza; Session 1, Group B
- 137 Polymeric electrospun scaffolds: Neuregulin encapsulation and biocompatibility studies in a rat model of myocardial ischemia; M Blanco-Prieto; Session 1, Group A
- 138 Polymeric nanocarriers delivery of protein through epithelial cells; R Li; Session 1, Group B
- 139 Polymeric, Cytokine-Aided Cell Recruitment & Histological Analysis; V Léandre; Session 1, Group A
- 140 PolySTAT: A peptide-based, synthetic injectable hemostat that reduces bleeding in trauma models; S Pun; Session 1, Group B
- 141 Porous silicon microparticle potentiates anti-tumor immunity by enhancing antigen cross-presentation and inducing type I interferon response; H Shen; Session 1, Group A
- 142 Preparation, Characterization, and In Vitro Release Study of Stromal Cell-Derived Factor-1-Loaded Chitosan Membrane; K Chen; Session 1, Group B
- 144 *Pseudomonas* Exotoxin A as a drug carrier for oral protein delivery; F Laurent; Session 1, Group B
- 145 Rabies vaccination in dogs using a dissolving microneedle patch; J Arya; Session 1, Group A
- 146 Redox-Sensitive Dextran Nanogels aimed for Intracellular Delivery of Antigens; D Li; Session 1, Group B
- 147 Self-Assembled Excipient-Free Enzyme Formulations For Oral Administration; M Mateescu; Session 1, Group A
- 148 Self-assembled nanoparticles of a peptide-drug conjugate for targeted cancer therapy; H Kim; Session 1, Group B
- 149 Self-Assembling MMP-2 Cleavable Hydrogel for On-demand Peptide Delivery; K Koss; Session 1, Group A
- 151 Simultaneous Delivery System of Antigenic Protein and Cytokine Gene Based on pH-Sensitive Polymer-Modified Liposomes for Induction of Antigen-Specific Immune Responses; E Yuba; Session 1, Group A
- 152 Size effects of gold nanoparticles on induction of cellular immune response toward cancer immunotherapy; S Kang; Session 1, Group B
- 154 Surface charge of adjuvant-modified PLGA microspheres can differently skew the immune response; M Igartua; Session 1, Group B
- 155 Sustained Gelatin Release from Injectable Polymer Hydrogel System for Human Mesenchymal Stem Cells Delivery with Improved Survival Rate; B Seo; Session 1, Group A
- 156 Sustained release formulations of biologics composed of cross-linked HA hydrogels; O Dall; Session 1, Group B

- 157 Targeted Delivery of GDNF to Brain by Novel V-SmartTM Nanovesicles and its Efficacy in Parkinson's Disease Animal Model; S Rosenbaum; Session 1, Group A
- 158 Targeting Skin Immune Cell Subsets for Intradermal Immunisation Against Influenza; M Ivory; Session 1, Group B
- 160 The Use of Inkjet Printing for Dosing Biomacromolecular Actives in Drug Delivery Systems; M MONTENEGRO-NICOLINI; Session 1, Group B
- 161 Therapeutic Tumor Lysate Vaccine for B cell lymphoma: Efficacy and Mechanistic properties of Soluble vs Particulate Tumor Lysate Formulations; K Roy; Session 1, Group A
- 162 Thermoresponsive Nano/Micro-Particles Based on PEGylated a-elastin for Protein Delivery; Y Jung; Session 1, Group B
- 165 Tuning Physical Properties of Sustained BMP-2 Releasing Hydrogel: Head-to-Head Study for Effective Bone Regeneration; B Seo; Session 1, Group A
- 855 Characterization of DNA complexes with cyclodextrin and polyethylene glycol bisphenol A as potential formulations for gene therapy; Y Rosales Morgan; Session 1, Group A

Delivery Science in Cosmetics, Personal Care, and Household Products

- 506 Cell Toxicity and Ocular Tolerability of Chitosan Nanoparticles Loaded with OTZ; A Al-kinani; Session 2, Group D
- 507 Coffee silverskin as new cosmetic ingredient: in vitro and in vivo evaluation; F Rodrigues; Session 2, Group C
- 508 Controlled Release of Encapsulated Bioactive Volatiles by Rupture of the Capsule Wall through the Light-Induced Generation of a Gas; D Berthier; Session 2, Group D
- 509 Criopass Laser Efficiency as an Enhancer of Caffeine and Caffeisilane C permeation: 3D Human Skin Equivalent as a Model Barrier; P Lopes; Session 2, Group C
- 510 Hyalgel(R): A novel hybrid system for dermo-cosmetic applications; D Morelló-Bolmar; Session 2, Group D
- 511 *In Vitro* Skin Permeation of Octyl Methoxycinnamate Encapsulated in a New Gelatin Capsule System; V Leite-Silva; Session 2, Group C
- 512 Morphological Changes in Polycaprolactone/Oil Systems; C Baker; Session 2, Group D
- 514 The effect of a damaged skin barrier on percutaneous absorption of SDS and skin hydration investigated by confocal Raman spectroscopy; M Hoppel; Session 2, Group D
- 515 Visualization and Quantification of Delivery in Hair Care Products; D Scurr; Session 2, Group C

Encapsulation for Industrial Applications

- 516 Antibacterial coating of catheters with solid lipid nanoparticles using physical plasma sources; G Lukowski; Session 2, Group D
- 517 Controlled Release of Menthol from Polycaprolactone; C Baker; Session 2, Group C
- 518 Development of Stable Polymersomes Encapsulating Bacteria for Release of Metabolites; J Barlow; Session 2, Group D
- 519 Dry Polymer Coating for Improving Physical Stability of Amorphous Drug Formulations; R Dave; Session 2, Group C
- 522 Enzymatically Triggered Release from Zein Particles for Antimicrobial Coatings and Plasters; N Papen-Botterhuis; Session 2, Group D
- 523 Hydrogels-Based Systems for Controlled Release in Agricultural Applications; A Dalmoro; Session 2, Group C
- 524 Multidrug Encapsulation Using PDMS Microfluidic Devices for Pulmonary Drug Delivery; H A. Santos; Session 2, Group D
- 525 Novel Encapsulation System for Water Soluble Powder; F Thuenbou-Magaia; Session 2, Group C
- 526 Observation of Phase Separation in Polyacrylamide Hydrogels with Variation in Cross-Linker Concentration: A Rheological Study; S JENA; Session 2, Group D
- 527 Optimization of dry coating formulation for improvement of acid-resistance and stability of probiotics by 3-factor, 3-level Box-Behnken Design; H Park; Session 2, Group C
- 529 Preparation of poly(e-caprolactone) microcapsules containing thyme oil; Y Kim; Session 2, Group C
- 530 Stimuli-responsive organo-silica/polyurea composite microcapsules; J Yang; Session 2, Group D
- 531 Taste Masking Active Pharmaceutical Ingredients using a Novel Acoustic Mixing Process; R T McLaughlin; Session 2, Group C

continued

Manufacture, Characterization, Measurement, and Stability

- 167 A combined spectroscopic and thermal methods for ketoprofen inclusion in cyclodextrins in solid state and analysis of the profile dissolution; M Vueba; Session 1, Group A
- 168 A Mathematical Approach for Assessing Release Kinetics of Nanosized Formulations by Application of a Novel Dialysis Apparatus; L Xie; Session 1, Group B
- 169 A New Solvent System for Electrospinning Polycaprolactone; A McLaughlin; Session 1, Group A
- 170 A Systematic Investigation of Surface Properties and Compression Profiles of Milled D-Mannitol; J Koner; Session 1, Group B
- 171 Amorphous Solid Dispersions: A Comparison Between Hot Melt Extrusion and Supercritical Fluid Impregnation; A Madi; Session 1, Group A
- 172 Analyzing lipid nanoparticles by Solid Phase Extraction; A Guillot; Session 1, Group B
- 173 Application of Polymer Coating on Size M "Mouse" Capsules Containing Immediate and Delayed Release Formulations; I McIntosh; Session 1, Group A
- 174 Aqueous Based Enteric Coating Formulation Containing Hypromellose Acetate Succinate (HPMCAS); A Quadir; Session 1, Group B
- 175 Aqueous Ethyl Cellulose Coatings for Pharmaceutical Dosage Forms; J Kazlauske; Session 1, Group A
- 176 Assessing PLGA microsphere porosity by means of fluid imaging microscopy techniques; A Sediq; Session 1, Group B
- 177 Biomimetic Barrier Permeapad™: an innovative tool for passive drug permeabilities investigation; M di Cagno; Session 1, Group A
- 178 Cell cytotoxic effects of clioquinol and prepare of a gellan gum/ glucosamine hydrogel carrier for oral cancer therapy; M Lee; Session 1, Group B
- 179 Cell Sheet Engineering for Primary Rabbit Corneal Epithelial Cell under Serum-free Culture Condition; H TSENG; Session 1, Group A
- 180 Characterisation of polymeric films with thermal methods: measurement of critical humidity and glass transition temperature; A Buanz; Session 1, Group B
- 181 Characterization of Self-Assembling PEG-PLGA Nanoparticles Encapsulating Semiconducting Conjugated Polymers; T Abelha; Session 1, Group A
- 182 Computer-Assisted Drug Formulation: Computational tools for dosage form design; R Hathout; Session 1, Group B
- 184 Controlling Polymeric Particle Size and Distribution by Adjusting the Applied Mechanical Force; A Azagury; Session 1, Group B
- 185 Deconstructing the tumor microenvironment - The role of fibronectin; F Vanterpool; Session 1, Group A
- 186 Designing a Permeation Model of the Gram Negative Bacterial Cell Envelope; F Gräff; Session 1, Group B
- 188 Determination of the Crystalline State of Ritonavir in Medium Chain Triglyceride Softgel Fill Formulations by X-ray Powder Diffraction; N Mahajan; Session 1, Group B
- 189 Development and Application of a Stability Indicating HPLC Method for the Estimation of Lidocaine Release from Poly Ethylene co-Vinyl Acetate (EVA) Melt Extrudates; P Bhusal; Session 1, Group A
- 192 Docetaxel Nanosuspension: Preparation and optimization using Quality by design approach; K Singh; Session 1, Group B
- 194 Effect of polyethyleneglycol bisphenol A epichlorohydrin copolymer and gluconolactone on trypsin biological activity; A Salem; Session 1, Group B
- 195 Effect of Processing Methods on Physical Stabilities of Amorphous Solid Dispersions Consisting of Naproxen and Povidone; T Listro; Session 1, Group A
- 196 Encapsulation of antifungal agents into solid lipid nanoparticles: Physicochemical characterization and biocompatibility studies; R Shah; Session 1, Group B
- 197 Evaluation of a Co-processed Excipient for Orally Disintegrating Tablets; S Obara; Session 1, Group A
- 198 Evaluation of Swelling and Erosion of HPMC Based Captopril Tablets; R Walker; Session 1, Group B
- 199 Evaluation the palatability of ebastine orally disintegrating tablets using OD-mate; as new apparatus of detecting disintegration time and electronic tongue system; T Uchida; Session 1, Group A
- 200 Fabrication of Nanoparticles By A Versatile And Robust Microfluidic Platform For Drug Delivery; D Liu; Session 1, Group B
- 201 Formation of Lipid and Polymer Based Gold Nanohybrids for Intracellular Trafficking; D Witzigmann; Session 1, Group A
- 202 Formulation and Characterization of Lipid Particles with Nephroprotective Properties; R Donaghey; Session 1, Group B
- 207 Impact of cationic polymer coatings on PLGA nanoparticle characteristics and immunogenicity; N Kunschke; Session 1, Group A
- 209 Importance of Osmotic Effects for the Control of Drug Release from Kollicoat SR Coated Pellets; J Fahier; Session 1, Group A
- 210 Infacort® - Manufacturing Process Scale Up and Characterisation of a Taste Masked Multiparticulate Oral Hydrocortisone Formulation for Paediatric Use; G Neal; Session 1, Group B
- 211 Influence of CO₂ Laser Irradiation on the Physical, Mechanical and Contact Angle Properties of Treated Enteric Coating Films; V Titapiwatanakun; Session 1, Group A
- 212 Injection Moulding of Controlled Release Solid Dispersions; A Kelly; Session 1, Group B
- 214 International Acceptability Study of Orally Disintegrating Tablets (ODTs) in Children and Young Adults; H Alyami; Session 1, Group B
- 215 Investigation of the stabilizer elimination during the washing step of charged PLGA microparticles utilizing a novel HPLC-UV-ELSD method; M Riehl; Session 1, Group A
- 216 Key Parameters and Limits for Quantification in Optical Imaging; J Stelzner; Session 1, Group B
- 220 Mechanical activation – milling induced solid state interaction as a mechanism to mitigate process induced amorphisation; K Gallagher; Session 1, Group B
- 221 Microfluidics liposome formulation and investigation of liposome-cell interactions by Atomic Force Microscopy (AFM); O Kemp; Session 1, Group A
- 222 Microfluidics-Controlled Manufacturing of Drug-loaded Nanoparticles in a Scalable and High-throughput Setup; E Kastner; Session 1, Group B
- 223 Microwave-Assisted Process For The Preparation of Microneedle Arrays; E Larrañeta; Session 1, Group A
- 224 Modeling in vitro Microsphere Settling Through Mucin; V Léandre; Session 1, Group B
- 225 Modelling Physical Stability of Amorphous Systems; D Serrano; Session 1, Group A
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- 228 Mucoadhesive characterization and in vitro antifungal activity of liquid crystal systems for buccal release of curcumin; G Calixto; Session 1, Group B
- 230 Nanogram scale High Throughput Characterization of Pharmaceutical Materials; M Algahtani; Session 1, Group B
- 231 Nanotoxicity Testing Using The Zebrafish Embryo Assay; S Golombek; Session 1, Group A
- 233 Non-steroidal anti-inflammatory drugs encapsulated into solid lipid nanoparticles: Characterization, cytotoxic and anti-inflammatory studies; R Shah; Session 1, Group A
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- 235 Optimizing the Loading of Diagnostic and Therapeutic Agents into the Shell of PBCA-Based Microbubbles for Image-Guided Drug Delivery; L Appold; Session 1, Group A
- 236 Pellet Distribution Analysis by UV Imaging and HPLC: A Comparative Study; A Novikova; Session 1, Group B
- 237 Physicochemical Characterization of Liposome-Peptides Complexes; P Iavicoli; Session 1, Group A
- 239 Polyethyleneimine-based liquid crystal precursor vehicle with *in situ* gelling for buccal administration: development and characterization; G Calixto; Session 1, Group A
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- 244 Protein-polyelectrolyte complexation kinetics monitored by nanoparticle tracking analysis and flow imaging microscopy; A Sediq; Session 1, Group B
- 245 Quality by Design Approach to Formulation of Rebamipide Gastro-retentive Tablet; K Hwang; Session 1, Group A
- 246 Quality evaluation of ibuprofen and quinine sulphate formulations sold on the market in Angola, using differential scanning calorimetry technique; M Vueba; Session 1, Group B
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- 250 Simultaneous Enhancement of Dissolution and Tribo-electrification of Solid Dispersions; K Asare-Addo; Session 1, Group B
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- 254 Solubility Improvement of Novel Antimicrobial Compounds, NCL812 and NCL099; Y Song; Session 1, Group B
- 255 Stabilization of Influenza Vaccine in Microneedle Patches for Room-Temperature Storage; M Mistilis; Session 1, Group A
- 256 Structural analysis of nanosystems: Solid Span Nanoparticles (SSN) as a case study; I Fernández Piñeiro; Session 1, Group B
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- 260 The Development of hot melt-injection moulding technique buccal patches for enhanced delivery of felodipine; M Alhijaj; Session 1, Group B
- 261 The Effect of Surfactants and Polymers on the Dissolution of Amorphous Indomethacin; T Laaksonen; Session 1, Group A
- 262 The NanoAssemblr™ Platform for the Scalable, Microfluidics-based Manufacture of Lipid-Based Nanoparticles for the Controlled Release of Therapeutics; C Walsh; Session 1, Group B
- 263 Tight Junctions as a Barrier in the Hair Follicle - Relevance for Drug Delivery; C Mathes; Session 1, Group A
- 264 Utilization of SoluPath Flex™ to Provide Data-Driven Choices in Preclinical Formulation Development; P Sabo; Session 1, Group B
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- 534 A biodistribution study of albumin-lyophilisomes; R Raavé; Session 2, Group D
- 535 A comparison of the pharmacokinetics of an inhaled PEGylated dendrimer between rats and sheep and the role of the pulmonary lymphatic system in absorption from sheep lungs.; L Kaminskas; Session 2, Group C
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- 540 A New Precipitation/Self-Assembly Method to Fabricate Monodisperse and Biodegradable Smart Microgels for Drug Delivery; T Hoare; Session 2, Group D
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- 544 A Novel Oxalipatin Derivative Showed Enhanced Efficacy in a Xenograft Model of Pancreatic Cancer; A Abu Ammar; Session 2, Group D
- 546 A novel vincristine submicron emulsion system with enhanced antitumor effect; T Zhang; Session 2, Group D
- 547 A safe and efficient hepatocyte-selective carrier system based on myristoylated preS1/21-47 domain of hepatitis B virus; Q Zhang; Session 2, Group C
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- 554 Advantages of fluorescent nanoprobe for tumor imaging and photodynamic therapy (PDT) and pitfalls of PDT in earlier studies; H Maeda; Session 2, Group D
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- 563 Axitinib-loaded Nanohybrid Liposomal Nanoparticles for Hypoxic Tumor; J Kim; Session 2, Group C
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- 567 Biodegradable Theranostic Agent of Melanoidin for Non-Invasive Photoacoustic Imaging and Photothermal Therapy; H Jung; Session 2, Group C
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- 609 Developing and assessing a combinatorial dietary phytochemical based polymeric micellar drug delivery system as a chemotherapeutic strategy; D Rao; Session 2, Group C
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- 658 Folate-conjugated Reducible Polyethylenimine Passivated Carbon dots Complexation with siRNA as Theranostic Nanoagent for Lung Cancer Therapy; T Wang; Session 2, Group D
- 660 Folate-Targeted Liposomes for Co-delivery of Paclitaxel and Imatinib: Combined Antitumoral Properties on Cytotoxicity and VEGF Expression; E Lima; Session 2, Group D
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- 670 High Throughput Approach to the Elucidation of the Role of Lipid Geometry in the Design and Development of Liposomal Drug Delivery Systems; E Suleiman; Session 2, Group D
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- 678 *In vitro* digestion of cetyl palmitate SLN monitored with two different readouts: Are the pH-stat and HPTLC results equivalent?; M Heider; Session 2, Group D
- 680 *In vivo* evaluation of a novel chemo-immunotherapeutic strategy to treat glioblastoma: paclitaxel and CpG loaded lipid nanocapsules; G Lollo; Session 2, Group D
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- 682 *In vivo* mitochondrial delivery of coenzyme Q10 via MITO-Porter prevents ischemic reperfusion injury in the liver; Y Yamada; Session 2, Group D
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- 707 Mesoporous Phospholipid Particles: A Novel Drug Delivery Platform; K Kawakami; Session 2, Group C
- 709 Micellar formulation of crizotinib and dasatinib for the treatment of glioblastoma multiforme; H Nehoff; Session 2, Group C
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- 730 Nanoparticles in cancer immunotherapy: towards a systemic application of resiquimod; C Thauvin; Session 2, Group D
- 731 Nanoparticles loading a natural anticancer agent tetrandrine for improving drug delivery; M Schneider; Session 2, Group C
- 732 Nanoparticulate Delivery of Growth Factors for Fracture Healing; O Udo-Chijioke; Session 2, Group D
- 734 New strategies based on gold nanorods to facilitate endosomal release; J Garcia; Session 2, Group D
- 735 Novel Polylysine PEG-Peptides Inhibit Scavenger Receptor Mediated Uptake of Nanoparticles by the Liver; K Rice; Session 2, Group C
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- 741 Oxidation-Responsive Polymers: Tailored Sensitivity to Reactive Oxygen Species for Drug Delivery Purposes; R d'Arcy; Session 2, Group C
- 742 Paclitaxel-Lapatinib loaded F127 Pluronic micelles; an *in vitro*- *in vivo* evaluation; F Dorkoosh; Session 2, Group D
- 743 PAMAM Dendrimer Interactions with Model Membranes; M Wilde; Session 2, Group C
- 744 Pegylated Docetaxel loaded Human serum albumin nanoparticles: Quality by design optimization, characterization, cytotoxicity and pharmacokinetics; S Pawar; Session 2, Group D
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- 757 Polymeric Smart Nanoparticles for the treatment of EGFR overexpressing diseases: preliminary *in vitro* characterization.; B Conti; Session 2, Group C
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- 759 Preclinical CT, BLI and PET imaging with 18F-FDG and 64Cu-liposomes for detection of metastatic lesions in mice; R De Souza; Session 2, Group C
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- 470 Locally-Controlled Release of Chemotherapeutic Drugs via Palladium-Functionalized Implants; B Rubio-Ruiz; Session 1, Group B
- 471 Mechanical Characterization of ECM Hydrogels for CNS Regeneration with Rheometer and Texture Analyzer; i kadiyala; Session 1, Group A
- 472 Microparticle-based Delivery of Clindamycin for Prevention of Mandibular Infection; S Shah; Session 1, Group B
- 473 Minimizing the Non-specific Binding of Nanoparticles in the Brain Enables Active Targeting of Fn14-positive Brain Tumors; A Kim; Session 1, Group A
- 474 Modifying Drug Release Kinetics of Enteric Coated Tablets Targeted to the Duodenum by CO₂ Laser Irradiation; V Titapiwatanakun; Session 1, Group B
- 476 Nanomedicine for prevention of corneal allograft rejection; Q Xu; Session 1, Group B
- 477 Omentum ECM-based hydrogel as a platform for cardiac cell delivery; M Shevach; Session 1, Group A
- 478 Patterned Nanoporous Polypyrrole for Tunable Ocular Drug Delivery; A Seyfoddin; Session 1, Group B
- 479 PEG-Polyacetal-Curcumin Conjugate in the Rescue of Acute Rat Spinal Cord Injury; M Vicent; Session 1, Group A
- 480 Penetration enhancers in transcorneal delivery of riboflavin; V Khutoryanskiy; Session 1, Group B
- 481 Perivascular administration of atorvastatin needs to be sustained in order to decrease neointimal hyperplasia in mice carotid artery ligation model.; I Mylonaki; Session 1, Group A
- 482 PLGA nanoparticles incorporated into a light-responsive gel as novel ocular injectable implant; R Bisht; Session 1, Group B
- 483 Porous Conducting Polymer Prepared Through Liquid Crystal for Stimuli Responsive Drug Delivery; D Uppalapati; Session 1, Group A
- 484 Porous PEDOT Honeycomb Structures for Stimuli Responsive Ocular Drug Delivery; M Yasin; Session 1, Group B
- 485 Preformulation Studies of Silicone Elastomer Type Combination Vaginal Ring of Dapivirine and Levonorgestrel; S Kumar; Session 1, Group A
- 488 Scaffolds optimized for the regional release of TGF- β 3 and BMP7 induce cartilage formation; M Garcia-Fuentes; Session 1, Group B
- 489 Selective Accumulation of PEG-liposomes in Brain after Traumatic Brain Injury; B Boyd; Session 1, Group A
- 490 Self-assembling benzothiazole prodrugs for targeted cancer therapy; F Citossi; Session 1, Group B
- 491 Site-specific simultaneous delivery of metronidazole and clarithromycin in treatment of *H. pylori* infections; A Adebisi; Session 1, Group A
- 492 Spray dried vesicular delivery system targeting pulmonary tuberculosis; A Hamed; Session 1, Group B
- 493 Stability of Docetaxel in polyurethane matrix and implications on release behavior- A SAXS account; M Shaikh; Session 1, Group A
- 494 Sustained Delivery of Local Anesthetic to Address Post-surgical Complications; M Sharma; Session 1, Group B
- 495 Sustained Intra-Articular Release of Celecoxib from In Situ Forming Gels Made of Acetyl-capped PCLA-PEG-PCLA Triblock Copolymers in Horses; M De Leeuw; Session 1, Group A
- 496 Synthesis and Evaluation of Hyaluronic Acid Hydrogel as a Biodegradable Polymer; H Obata; Session 1, Group B

continued

Regional Delivery continued

- 497 Systematic investigation of the role of extracellular calcium in enhancing stratification of buccal cell cultures to enhance *in vitro* assessment of transmucosal drug delivery; A Iyire; Session 1, Group A
- 498 Targeted pulmonary montelukast sodium loaded lecithin based soft agglomerates for treatment of asthma; R Osman; Session 1, Group B
- 500 The Development of All-*Trans* Retinoic Acid-Loaded Collagen-Hyaluronic Acid Films for Respiratory Tissue Regeneration; C O'Leary; Session 1, Group B
- 501 The improvement of Solid Lipid Microparticle breathability for an anti-TB inhalation therapy; V Iannuccelli; Session 1, Group A
- 503 Trojan starch-based nanoparticles for the deep lung delivery of IgG1; S Barthold; Session 1, Group A
- 504 Tying up the giant: the influence of cross-linked networks of hyaluronic acid on macrophage function; R Gemeinhart; Session 1, Group B

RNA and DNA Delivery

- 843 A Lipid Nanoparticle siRNA Delivery System for Non-Hodgkin Lymphoma; K Whitehead; Session 2, Group C
- 844 Albumin-mediated protection, reduced immunogenicity and extended circulatory half-life of cholesterol modified small interfering RNA; K Bienk; Session 2, Group D
- 845 anti-IL8 siRNA Nanoparticles Induce Knockdown in Epithelial Cells-*in vitro* and *in vivo*; J Ramsey; Session 2, Group C
- 848 Attachment of Hydrophobic Tails to Polyamino Alcohols Enhances DNA and siRNA Delivery; Y Wu; Session 2, Group D
- 849 Autophagy-related Gene Expression Analysis Of Mouse Embryonic Fibroblast Cells Treated With Polyethylenimine; J Kuo; Session 2, Group C
- 850 Branched modified R9 cell-penetrating peptide for efficient gene delivery into mammalian cells; J Yoo; Session 2, Group D
- 851 Carrier exchange between the core and shell of PLL- and PEI-DNA nanoparticles; E Vuorimaa-Laukkanen; Session 2, Group C
- 852 Catechol-conjugated Polymeric Films for the Adeno-associated Virus-mediated Transfection; S Lee; Session 2, Group D
- 853 Cell Derived Nano-Ghosts: A Novel Targeted Gene Delivery System For Cancer Therapy; L Kaneti; Session 2, Group C
- 854 Cell-Penetrating Peptide Mediated Gene Delivery via Polymeric Microneedles; A Platform for DNA Vaccination; J McCaffrey; Session 2, Group D
- 856 Chitosan coated PLGA Nanoparticles for Pulmonary Delivery of mRNA encoding a Zinc Finger Nuclease: An *in-vivo* proof of concept study for somatic genome editing; B Loretz; Session 2, Group D
- 857 Chitosan-pDNA Nanoparticles Facilitate Controlled Gene Delivery on Collagen Scaffolds for Orthopaedic Tissue Engineering Applications; R Rafferty; Session 2, Group C
- 859 Co-delivery with other nucleic acids affects the efficiency of mRNA translation; J Devoldere; Session 2, Group C
- 860 Colloidal stability of polymeric nanocapsules in an *ex-vivo* model of vitreous humor; S Reimóndez-Troitiño; Session 2, Group D
- 861 Combinatorial Library of Ternary Polyplexes Enables Identification of Improved siRNA Nanocarriers for Rapid *In Vivo* Translation; T Werfel; Session 2, Group C
- 862 Comprehensive study of DC-Chol/DOPE liposome for the delivery of siRNA in lung cancer; A Alshehri; Session 2, Group D
- 863 Construction of Structural Viral-Mimicry by Peptide/DNA Co-assembly; R Ni; Session 2, Group C
- 865 Cyclodextrin-based co-formulations for targeted delivery of siRNA to prostate cancer; C O' Driscoll; Session 2, Group C
- 867 Design Of A Multifunctional Vector For Delivery Of miRNA-34a For Metastatic Prostate Cancer; S Loughran; Session 2, Group C
- 870 Development of Adipocyte-Targeted Oligopeptide Gene Delivery System; H Kim; Session 2, Group D
- 871 Development of Functional Viral-Mimicry by Optimization of Peptide/ DNA Co-assembly; R Ni; Session 2, Group C
- 872 Development of PGA Based Systems for pDNA Delivery; A Niño; Session 2, Group D
- 873 Development of Star Shaped Polypeptides As Non-Viral Gene Delivery Vectors to Produce Gene Activated Matrices for Bone Tissue Engineering; D Walsh; Session 2, Group C
- 874 Distribution of PEI-PEG-based polyplexes in tumor tissue and possible approach to improve gene delivery; M Durymanov; Session 2, Group D

- 875 Efficient Expression of mRNA PEG-Peptide Polyplexes in Liver; K Rice; Session 2, Group C
- 876 Efficient One-step Preparation of siRNA-encapsulated Non-cationic Liposomes; M Somiya; Session 2, Group D
- 877 Efficient siRNA delivery system mediated with dendritic gold nanocrystals; M Lee; Session 2, Group C
- 878 Elucidation of the Mechanism of Increased Activity of Immunostimulatory DNA by Formation of Polypod-like Structure; K Mohri; Session 2, Group D
- 879 Exosomes underperform compared to liposomes for functional, *in vitro* siRNA delivery; S Stremersch; Session 2, Group C
- 880 Formulation Development and Evaluation of Ultradeformable cationic Liposomes for Delivery of Oligonucleotides; G Asthana; Session 2, Group D
- 881 Gene Delivery to the Brain Using Brain Penetrating DNA Nanoparticles; P Mastorakos; Session 2, Group C
- 882 Heme Oxygenase-1 Gene Delivery using a Polymeric Carrier for the Treatment of Ischemic Stroke; J Oh; Session 2, Group D
- 883 Hyaluronic acid-incorporated calcium phosphate nanoparticles for specific tumor-targeted siRNA delivery; M Lee; Session 2, Group C
- 884 Intracellular redox potential-responsive micelles for enhanced miR-34a delivery; I hanmei; Session 2, Group D
- 885 Intraperitoneal liposomal-based siRNA delivery: A Systematic Evaluation in the Ascites Fluid; G Dakwar; Session 2, Group C
- 886 Life prolongation in rats with malignant glioma by intranasal siRNA/ drug co-delivery to the brain with cell-penetrating peptide-modified polymer micelles; T Kanazawa; Session 2, Group D
- 887 Lipidoid siRNA Nanoparticles for Intestinal Disease Therapeutics; R Ball; Session 2, Group C
- 888 Lipoplexes Containing Bipolar Tetraether Lipids for Transfection of Cancer Cell Lines; K Engelhardt; Session 2, Group D
- 889 LNA/2'OMe Delivery to *Helicobacter pylori* within Gastric Mucus; R Santos; Session 2, Group C
- 891 Mannosylated Polyion Complexes for *In Vivo* Gene Delivery into CD11c+ Dendritic Cells ; A David; Session 2, Group C
- 893 Peptide Nanofiber Vectors of siRNA for Glioblastoma Treatment; M Mazza; Session 2, Group C
- 895 poly(2-dimethylaminoethyl methacrylate)-functionalized graphene oxide nanoflakes for efficient cellular delivery of siRNA; J Lee; Session 2, Group C
- 896 Polymeric and lipidic nanoparticles for targeted siRNA delivery; G Golomb; Session 2, Group D
- 897 Polymeric Nanoparticles For The Pulmonary Delivery Of miRNA To Treat Chronic Obstructive Pulmonary Disease (COPD); A Mohamed; Session 2, Group C
- 899 Reciprocal dormancy-promoting nanomedicine altering EGFR and TSP-1 for the management of glioblastoma; R Satchi-Fainaro; Session 2, Group C
- 900 Regression of prostate tumors following intravenous administration of tumor-targeted dendriplexes; C Dufes; Session 2, Group D
- 901 Regulation of Osteogenic Genes using microRNA-Activated Scaffolds to Enhance Mesenchymal Stem Cell Osteogenesis; F O'Brien; Session 2, Group C
- 902 RNAi and gene delivery mediated via novel Lipopolyplexes; S Pinnapireddy; Session 2, Group D
- 904 Self-destroying Bioreducible Polymer with Agmatine Moiety for Efficient Gene Delivery Systems; T Kim; Session 2, Group D
- 905 Simple Method for Preparation of 20-50 nm Lipid Nanoparticles Encapsulating siRNA Using a Y Connector; T Schröder; Session 2, Group C
- 906 Span based nanoparticles as efficient non-viral vectors for *in vivo* *PRPF31* gene delivery to treat inherited retinal dystrophy; A Pensado; Session 2, Group D
- 908 Tailoring the Surface of a Gene Delivery Vector with Carboxymethylated Dextran: a Systematic Analysis; C Fortier; Session 2, Group D
- 910 Targeted Gene Delivery into Peripheral Nervous System Mediated by Trimethyl Chitosan Nanoparticles; A Pego; Session 2, Group D
- 911 Targeted mitochondrial delivery of functional nucleic acids using MITO-Porter; E Kawamura; Session 2, Group C
- 912 Targeting chitosan oligosaccharide nanoplexes to lung cancer cells for enhanced internalization and improved siRNA delivery; U KOLI; Session 2, Group D
- 913 The NanoAssemblr™ Platform: Scalable, Microfluidics-based Manufacture of RNA Lipid Nanoparticles; C Walsh; Session 2, Group C
- 915 Ultrasound-mediated gene transfer to the brain; S Pun; Session 2, Group C

Topical and Transdermal Delivery

- 917 A microfluidic system using a hollow microneedle for targeted drug delivery of phenylephrine for treatment of fecal incontinence; M Han; Session 2, Group C
- 918 A novel spraying method for preparing Eudragit® E PO-Soluplus®-Perphenazine thin matrix films; K Korhonen; Session 2, Group D
- 919 Acute Dermal Irritancy and Anti-Arthritic Efficacious study of Alginate Bilayer Film containing Hydroxytyrosol in Freud's Adjuvant induced-Arthritic Rat Model; S Ng; Session 2, Group C
- 920 Allergen-coated microneedles as a novel way for asthma preventive immunotherapy; A Shakya; Session 2, Group D
- 921 Antimicrobial hydrogels based on poly(vinyl alcohol)- poly(methyl vinyl ether-*alt*-maleic anhydride) combinations for wound care applications; E Calo'; Session 2, Group C
- 922 Bacterial Nanocellulose as Wound Dressing for Controlled Fast and Prolonged Release of Octenidine; D Fischer; Session 2, Group D
- 923 Challenging the Topical Antimicrobial Paradigm: Application of Transdermal Permeation Enhancer Technologies to the Treatment of Skin and Soft Tissue Infections.; J McArthur; Session 2, Group C
- 924 Chlorhexidine digluconate nanoemulsions for topical antiseptics; P Kakadia; Session 2, Group D
- 925 Colocalization of Two Fluorophores with Polymeric Micelles by FRET Confocal Microscopy; J Liaw; Session 2, Group C
- 927 Design of a Dissolving Microneedle Platform for Transdermal Delivery of a Fixed-dose Combination of Cardiovascular Drugs; H Quinn; Session 2, Group C
- 928 Development and Characterization of Mucoadhesive *In Situ* Nasal Gelling Systems.; H Parekh; Session 2, Group D
- 929 Development and Evaluation of Tocotrienol-based Nanoemulsion Platforms for Dermal Chemoprevention Applications; T Elbayoumi; Session 2, Group C
- 930 Development of a Novel Transdermal Drug Delivery System using an Atmospheric-pressure Low-temperature Plasma Jet; K Kusamori; Session 2, Group D
- 933 Development of Thermostable Oxytocin-Coated Microneedle Patch for Treatment of Postpartum Hemorrhage; M Prausnitz; Session 2, Group C
- 934 Effect of Photoinitiator Concentration on the Properties of Unmedicated Hydrogels.; R Wong; Session 2, Group D
- 935 Encapsulation Of Diterpene Parvifloron D In Hybrid Nanoparticles For Cancer Targeted Therapy; C Silva; Session 2, Group C
- 936 Enhanced Release and Solubilization of Paclitaxel by Buccal Delivery System based on DMBCD and Pluronic F127; C Ng; Session 2, Group D
- 937 Evaluating the impact of various additives upon the gel-point temperature of aqueous poloxamer-based formulations; T Cech; Session 2, Group C
- 938 Evaluation of In Vitro Skin Permeability of Succinylated Type I Atelocollagen; S Park; Session 2, Group D
- 939 Formulation and development of a novel dermal system for the local delivery of the anti-cancer agent MTL-004; M Marwah; Session 2, Group C
- 940 Formulation and evaluation of topical formulation of a local anaesthetic drug for pain management; S Sawarkar; Session 2, Group D
- 941 Formulation and Evaluation of Loxoprofen Sodium Containing Topical Gel; C ASIK; Session 2, Group C
- 942 Human Growth Hormone Coated Microneedles for the Treatment of Wrinkles; I Choi; Session 2, Group D
- 943 Hyaluronan-based Dissolving Microneedles for Intradermal Protein Delivery: Protein Stability and Microneedle Dissolution in Skin; J Mönkäre; Session 2, Group C
- 944 Imiquimod Permeation into the Skin to Treat Basal Cell Carcinoma; M AL-Mayahy; Session 2, Group D
- 945 Improve of tyrosinase inhibitor activity by *trans*-resveratrol-loaded solid lipid nanoparticles; R Rigon; Session 2, Group C
- 946 *In vitro* biocompatibility studies of microneedle arrays for use in the transdermal delivery of ibuprofen sodium.; M McCrudden; Session 2, Group D
- 947 *In vivo* Monitoring of Compound Permeation and Age Related Effects in Human *Stratum Corneum*; N Starr; Session 2, Group C
- 948 *In Vivo* Theophylline, Caffeine and Glucose Monitoring Using Hydrogel-Forming Microneedles; E Caffarel-Salvador; Session 2, Group D
- 949 Influence of fresh or defrosted pig ear tissue upon tape stripping results; C Keck; Session 2, Group C
- 951 Isotretinoin colloidal carriers for topical acne treatment: ATR-FTIR and *in vitro* cytotoxicity studies; M ERDAL; Session 2, Group C
- 953 Microemulsion Improves Oral and Topical Absorption of Acyclovir; J Tsai; Session 2, Group C
- 954 Microemulsions for topical Fluconazole delivery; T Gratieri; Session 2, Group D
- 955 Microneedle-mediated delivery of donepezil: potential for improved treatment options in Alzheimer's disease.; M Kearney; Session 2, Group C
- 956 Micropore Closure Kinetics are Delayed Following Microneedle Insertion in Elderly Subjects; N Brogden; Session 2, Group D
- 958 Nanofibers Based On Chondroitin Sulfate Intended For Wound Healing; C Caramella; Session 2, Group D
- 959 Nanotechnological approaches for skin regeneration: The topical administration of rhEGF loaded Nanostructured lipid carriers enhances healing in a swine wound model; R Hernandez; Session 2, Group C
- 960 Novel Bioadhesives Based on Gelatin and Alginate with Controlled Release of Antibiotic Drug; M Foox; Session 2, Group D
- 961 Optimization of Electrospun Nanofiber Mats for Transdermal Delivery; E Kahraman; Session 2, Group C
- 962 P.L.E.A.S.E.® Fractional Laser Ablation for the Cutaneous Deposition of Triamcinolone Acetonide Loaded PLGA Microparticles; M Singhal; Session 2, Group D
- 963 Pharmacokinetic profile of donepezil hydrochloride microneedle encapsulation for the treatment of Alzheimer's disease; J Kim; Session 2, Group C
- 964 PLGA/PEI/pH1N1 Polyplex coated Microneedle as an Efficient Transdermal DNA Vaccine Delivery System; H Seok; Session 2, Group D
- 965 Polymer-microneedles coated with a hydrophilic solution; H LEE; Session 2, Group C
- 966 Preliminary Studies on the Design of a Temperature Regulated Patch; K Dodou; Session 2, Group D
- 967 Propranolol and Timolol-Loaded Nanoparticles for Topical Treatment of Infantile Hemangiomas; N Brogden; Session 2, Group C
- 969 smartPearls for the Dermal Delivery of Physically Stable Amorphous Cyclosporine; C Keck; Session 2, Group C
- 970 smartPearls-Dermal Delivery System for Cosmetics and Consumer Care based on Amorphous Actives; C Keck; Session 2, Group D
- 971 smartPearls™ for the Dermal Delivery of Azithromycin against Borreliosis Infection; R Mueller; Session 2, Group C
- 973 Sterilisation Considerations in the Preparation of Polymeric Microneedle Arrays: Enhancing Controlled Delivery of the Model Protein Ovalbumin; A Courtenay; Session 2, Group C
- 974 Studies on a semisolid emulsion of doxycycline for transdermal drug delivery; K Dodou; Session 2, Group D
- 975 Sustained Delivery of Peptides and Proteins by High Content Phospholipids-based Phase Separation Gel; T Gong; Session 2, Group C
- 976 Targeting of skin resident dendritic cells via laser microporation; Y Machado; Session 2, Group D
- 978 The hen's egg chorioallantoic membrane (HET-CAM) test to predict the ophthalmic irritation potential of cysteamine-containing gels: Quantification using Photoshop® and ImageJ; B McKenzie; Session 2, Group D
- 979 Thermosensitive Dendritic Polyglycerol-Based Nanogels for Cutaneous Delivery of Biomacromolecules; K Obst; Session 2, Group C
- 980 Transdermal and Dermal Drug Delivery by means of Polyglycerol-based Nanogels; F Rancan; Session 2, Group D
- 982 Transdermal Photodynamic Therapy Using Carbon Dot - Chlorin e6 - Hyaluronate Conjugate; S Beack; Session 2, Group D

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Join your colleagues in the Exposition Hall (Lennox Suite) to discuss profitable collaboration for discovery, solutions, and opportunities.

Exposition Hours

Sunday, July 26

5:30 – 7:30 p.m. Welcome Reception/Networking

Monday, July 27

9:30 – 10:30 a.m. Meet with Exhibitors

12:00 – 1:00 p.m. Meet with Exhibitors (lunch available for purchase)

4:30 – 5:30 p.m. Happy Hour and Networking

Tuesday, July 28

9:30 – 10:30 a.m. Meet with Exhibitors

12:00 – 1:30 p.m. Meet with Exhibitors (lunch available for purchase)

3:00 – 4:30 p.m. Meet with Exhibitors

Exhibitors

The following descriptions, supplied by the exhibiting companies as of June 10, 2015, provide product, service, and contact information. Please see the program addendum for additional exhibitor information.

S – Sponsor

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203 Ashland Specialty Ingredients, Switzerland, Tel: +41 52 560 5500, www.ashland.com.

902 Avanti Polar Lipids, Inc., U.S.A., Tel: +1.205.663.2494, www.avantilipids.com. Avanti Polar Lipids, with an unparalleled reputation for purity, is clearly established as world leader in the production of phospholipids, sphingolipids, and sterols. Exciting new products for the research chemist and cGMP lipids for pharmaceutical production. Recent developments include adjuvants, glycosylated sphingolipids, new fluorescent and deuterated lipids; plus analytical services.

701/801 BASF SE, Germany, Tel: +49 621 60 20173, www.pharma-ingredients.basf.de. BASF offers comprehensive solutions to the pharmaceutical industry, ranging from a broad, high-quality excipients portfolio to APIs. With its expertise in polymer chemistry, its worldwide R&D capabilities and the company's commitment to developing value-adding excipients, BASF continuously creates solutions to challenges related to instant and modified release, solubilization, soft gels, and skin delivery.

- 103 BioNavis Ltd.**, Finland, Tel: +358 102715030, www.bionavis.com. BioNavis is a Finnish manufacturer of MP-SPR Navi™ research instruments, which is a powerful label-free method for drug delivery and targeting studies. Our instruments are based on Multi-Parametric Surface Plasmon Resonance (MP-SPR) that allows to: optimize targeting from small molecule weight drugs up to nanoparticles and viruses; evaluate affinity and kinetics of the molecular binding events; quantify drug-target, drug-lipid membranes and even drug-living cell monolayer interactions; distinguish paracellular and transcellular drug uptake; monitor drug release from polymer film in real time; reduce bulk effect by in-line measurements; and understand better your molecules with kinetics and dynamic conformation change information from MP-SPR.
- 303 BUCHI Labortechnik AG**, Switzerland, Tel: +41 71 3946363, www.buchi.com/en/content/spray-drying-encapsulation-solutions. For more than 35 years BUCHI spray drying and encapsulation solutions have been appreciated by scientists worldwide. BUCHI encapsulation devices combined with a variety of glassware, nozzles and accessories allow you to achieve encapsulated particles from nano- to millimeter scale. Visit us at our booth to discuss your tailored solution.
- 101 Caleva Process Solutions**, United Kingdom, Tel: +44 1258 47 11 22, www.caleva.com. Caleva Process Solutions Ltd. is a British-based designer and manufacturer of extruders and spheronizers for the pharmaceutical industry with more than 40 years' experience. We specialize in design, build, and supply of equipment for production and laboratory development of pharmaceutical pellets (spheroids). Call us on +44 (0) 1258 471122.
- 601 Capsugel Dosage Form Solutions/Bend Research**, U.S.A., Tel: +1.541.382.4100, www.capsugel.com. Capsugel's Dosage Form Solutions, including Bend Research and Encap, solves customers' product development challenges, including bioavailability enhancement, modified release, and inhalation formulation. High-quality science and engineering is core to our offering at each stage of the product development cycle and has enabled the successful advancement of hundreds of compounds.
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- 400 Catalent Pharma Solutions**, U.S.A., Tel: +1.877.587.1835, www.catalent.com.
- 604 Celanese EVA Polymers**, U.S.A., Tel: +1.972.443.4000, www.vitaldose.com. Celanese EVA Polymers combines the unique properties of VitalDose® excipients with high-touch service, in-depth technical expertise, and comprehensive regulatory knowledge to help customers meet their product objectives. VitalDose® EVA polymers are used for controlled release drugs and medical applications through many routes of administration. Learn more at www.VitalDose.com.
- 200 Colorcon**, United Kingdom, Tel: +44 1322 29 30 00, www.colorcon.com. Colorcon is a world leader in the development, supply, and technical support of formulated film coating systems, modified release technologies, and functional excipients for the pharmaceutical industry. Our best-in-class products and technologies are complemented by our value-added services, which support all phases of solid oral dose design and development.
- 804 Corbion Purac Biomaterials**, Netherlands, Tel: +31 183 695 529, www.corbion.com/biomedical. Corbion Purac Biomaterials has more than 40 years of experience as a leading global supplier of lactide/glycolide resorbable homopolymers and copolymers. We offer a broad range of standard PURASORB® polymers and monomers as well as provide custom synthesis capabilities for specific formulation requirements.
- 903 CordenPharma**, Switzerland, Tel: 1.800.868.8208, www.cordenpharma.com/apis/derivitized-phospholipids. CordenPharma is your full-service CDMO partner in the contract development and manufacturing of APIs, drug products, and associated packaging services from R&D to commercialization. With multiple cGMP facilities across Europe and the United States, CordenPharma specializes in supplying custom synthesized materials such as lipids, peptides, carbohydrates, and conjugates.
- 104 Delta ModTech**, U.S.A., Tel: +1.763.755.7744, www.deltamodtech.com. Delta ModTech® is dedicated to providing precise, flexible, and innovative manufacturing and packaging systems worldwide. Delta ModTech offers solutions for a variety of complex medical, pharmaceutical, label, and cosmetic products. Delta ModTech systems are designed and engineered to meet your application requirements, improve your profitability, and reduce your risk.
- 1200 Dissolution Technologies**, U.S.A., Tel: +1.302.235.0621, www.dissolutiontech.com. *Dissolution Technologies* is an international peer-reviewed, indexed quarterly journal reporting dissolution-related current information and scientific articles. The website, www.dissolutiontech.com, is searchable and contains the current and all back issues with articles available for free as a PDF download. *Dissolution Technologies* is celebrating twenty years of publishing this open-access journal.

- 1201 Drug Development & Delivery**, U.S.A., Tel: +1.973.299.1200, www.drug-dev.com. *Drug Development & Delivery* is a print and online content provider that presents the latest scientific methods in drug development for professionals working in research and development, pre-formulation, formulation development, bioavailability enhancement, particle design, APIs, and analytical methods.
- 500 DURECT Corp./LACTEL® Absorbable Polymers**, U.S.A., Tel: +1.408.777.4927, www.absorbables.com. Visit LACTEL at booth #500 to inquire about our biodegradable polymers and their use in nano- and micro-based sustained release delivery systems. LACTEL polymers are also used in tissue engineering, electrospinning, 3D printing, drug-eluting stents, and more. We offer an extensive stock inventory and have substantial expertise in custom synthesis.
- 504 Elsevier**, United Kingdom, +1.212.989.5800, www.elsevier.com. Elsevier publishes the *Journal of Controlled Release*, an official journal of the Controlled Release Society and the Japanese Society of Drug Delivery System. Elsevier is the leading publisher dedicated to providing authors the latest articles, tools, and resources within pharmaceutical sciences.
- 201 Evonik Industries AG**, Germany, Tel: +40 6151 18 4019, www.evonik.com/healthcare. Evonik, a global leader in specialty chemicals, provides drug delivery technologies, API manufacturing, intermediates, and amino acids. Delivery technologies include development services, solubility enhancement, functional excipients, and GMP manufacturing for oral and parenteral formulations. Advanced delivery technologies provided for small molecules, peptides, proteins, antibodies, and nucleic acids used in extended-release parenterals.
- 401 Freund-Vector Corporation**, U.S.A., Tel: +1.319.377.8263, www.freund-vector.com. Freund-Vector Corporation is a world leader in the design, manufacturing, and marketing of solid dosage processing equipment for the coating, granulating, and drying of powders, granules, beads, and tablets for the pharmaceutical and healthcare industries. Product lines include tablet pan coaters, roll compactors, fluid bed granulators/coaters/dryers, and high-shear granulators and automated process control systems.
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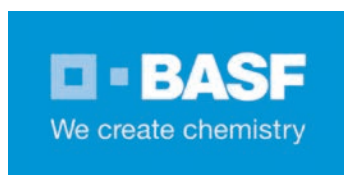
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2015 CRS Awards & Recognition

Join Us in Celebrating Our Esteemed Colleagues

The Controlled Release Society is proud to honor this year's awardees for their dedication and contributions to delivery science and CRS. Join us in honoring all stages of what it means to be a delivery scientist, from recognizing tomorrow's leaders with the Postdoctoral Achievement Award of the Foundation's prestigious fellowship to celebrating the lifelong dedication of our newest inductees into the College of Fellows. Awards will be given at the opening session and the three plenary sessions. See individual award times on the following pages. Congratulations, 2015 CRS awardees!

2015 Annual Meeting Program Committee

Thank you to this year's Annual Meeting Program Committee for their time and talents in planning this scientifically outstanding meeting.

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With immense appreciation and sincere gratitude, we honor the following members of the Board of Directors for their leadership and service to CRS over the past years:



Yvonne Perrie
Director-at-Large
Aston University,
United Kingdom



Ian Tucker
Immediate Past
President
University of Otago,
New Zealand

Special thanks and appreciation to the following members of the Board of Scientific Advisors who will be rotating off the committee for their service to CRS over the past three years.

- Edith Mathiowitz, Brown University, U.S.A.
- Terry Allen, University of Alberta, Canada
- Jake Barralet, McGill University, Canada
- Charles Frey, Coating Place Inc., U.S.A.
- Justin Hanes, Johns Hopkins University, U.S.A.
- Leaf Huang, University of North Carolina, U.S.A.
- Gert Storm, Utrecht University, The Netherlands
- Ernst Wagner, Ludwig Maximillians University, Germany

Distinguished Service Award

The Distinguished Service Award is presented to a CRS member who has exhibited exceptional commitment and service to the society and is selected by the Board of Directors.

**Presentation: Opening Session, Monday, July 27
8:00 – 9:30 a.m.**



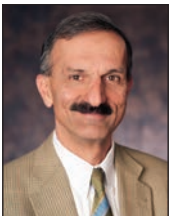
Kinam Park received his Ph.D. in pharmaceuticals from the University of Wisconsin in 1983. After postdoctoral training in the Department of Chemical Engineering at the same university, he joined the faculty of Purdue University in 1986. Since 1998, he has held a joint appointment in the Department of Biomedical

Engineering, and he became the Showalter Distinguished Professor of Biomedical Engineering in 2006. His research focuses on oral delivery, drug-device combination products, and long-term microparticle formulations. He is the founder of Akina, Inc., specializing in polymers for drug delivery. He is currently the editor-in-chief of the *Journal of Controlled Release*.

College of Fellows

The College of Fellows recognizes those members who have made outstanding contributions to the field of delivery science and technology over a minimum of 10 years. Contributions may have been technical, scientific, and/or managerial in one or more fields of research, commercial development, education, and/or leadership within the areas of interest to CRS. Fellowship is the most prestigious level of membership in CRS.

**Presentation: Opening Session, Monday, July 27
8:00 – 9:30 a.m.**



Hamid Ghandehari is a professor of pharmaceuticals and bioengineering at the University of Utah. His laboratory pioneered the use of recombinant polymers for controlled gene delivery, designed water-soluble polymers for targeted delivery of bioactives to sites of tumor angiogenesis, and investigated transepithelial transport of

poly(amido amine) dendrimers for oral drug delivery and the influence of shape, size, and surface properties of inorganic nanoconstructs on cellular uptake and toxicity. Dr. Ghandehari has authored nearly 150 peer-reviewed articles and given 200 invited talks. He joined CRS in 1992 and currently serves as a member of the CRS Board of Scientific Advisors.



Edith Mathiowitz is a full professor of medical science and engineering at Brown University in the Department of Molecular Pharmacology, Physiology, and Biotechnology. Her extensive experience includes development of polymers that are used in drug and gene delivery systems and tissue engineering applications, including

stem cell recruitment. Dr. Mathiowitz trained as a postdoctoral associate with Prof. Robert Langer at the Massachusetts Institute of Technology. Dr. Mathiowitz's work not only resulted in major publications but also translated into two start-up companies, Spherics, Inc., and Perosphere, Inc., which focus their efforts on developments to improve patient compliance.



Samir Mitragotri is a professor of chemical engineering at the University of California, Santa Barbara. His research interests are in the field of transdermal drug delivery, oral drug delivery, and nanoparticle-based drug delivery systems. He has published around 200 papers and is an inventor of around 100 pending or issued patents. He is a member

of the National Academy of Engineering and an elected fellow of the National Academy of Inventors, the American Institute for Medical and Biological Engineering, and the American Association for the Advancement of Science. He is an associate editor of the *Journal of Controlled Release*.



Yvonne Perrie is the head of pharmacy and chair in drug delivery within Aston Pharmacy School, Aston University, Birmingham, United Kingdom. She has a B.Sc. (first-class honors) in pharmacy from Strathclyde University. Yvonne attained her Ph.D. from the University of London under the supervision of Prof. Gregoriadis.

Yvonne's research is multidisciplinary and is focused on the development of drug carrier systems to facilitate the delivery of drugs and vaccines, providing practical solutions for current healthcare problems. Yvonne has published approximately 100 peer-reviewed papers, 5 patents, and 4 textbooks.



Thomas Rades is the research chair in pharmaceutical design and drug delivery in the Department of Pharmacy, University of Copenhagen, Denmark. His research interests include the solid state of drugs and dosage forms, and nanoparticles as delivery systems for drugs and vaccines. Research in both areas aims to improve drug therapy

through appropriate formulation and characterization of medicines and to increase understanding of the physicochemical properties of drugs and medicines. Prof. Rades is an editor of the *Journal of Pharmaceutical Sciences* and the *European Journal of Pharmaceutics*. He holds an honorary doctorate from Åbo Akademi University, Finland.

continued

Founders Award

The society grants this honor to a current CRS member who is internationally recognized for outstanding contributions in the science and technology of controlled release.

Presentation: Opening Session, Monday, July 27
8:00 – 9:30 a.m.

Award Lecture: *Starting up a New Life Science Company*



Gary W. Cleary is an internationally recognized scientist in the field of drug delivery systems and polymer technologies as well as founder and cofounder of Cygnus and Corium, Inc., both drug delivery companies where he has served as chairman, president, and chief technology officer. He holds 50 patents in this area. He has received

several entrepreneur of the year awards from Life Sciences for Northern California, New Jersey Center for Biomaterials, AAPS Rainer Hoffman Award, and the UCSF Distinguished Alumnus Award. During his career he has held research and management positions at the U.S. Public Health Service, FDA, Alza, Key Pharmaceuticals, Genentech, Cygnus, and Corium. Cleary has a Pharm.D. (University of California, San Francisco), Ph.D. (Rutgers), and MBA (University of Miami).

CRS/T. Nagai Postdoctoral Research Achievement Award

Cosponsored by The Nagai Foundation Tokyo

This award recognizes an individual postdoc who has recently completed postdoctoral research in controlled release science and technology and the postdoc's advisor, who played an integral role in the achievements.

Presentation: Opening Session, Monday, July 27
8:00 – 9:30 a.m.

Award Lecture: *Endosomal Escape: Elusive or Illusive*



Gaurav Sahay is an assistant professor in the College of Pharmacy at Oregon State/ Oregon Health Science University. Profs. Robert Langer and Daniel Anderson served as his mentors for postdoctoral training at the Massachusetts Institute of Technology. Dr. Sahay received his Ph.D. under Prof. Alexander Kabanov at the University of

Nebraska. Currently, Sahay Lab is dissecting the molecular mechanisms involved in intracellular trafficking of nanomedicines and engineering methods to trigger their endosomal escape for cytosolic delivery of RNA therapeutics. Advisors: Prof. Robert Langer and Prof. Dan Anderson, MIT, U.S.A.

Outstanding Annual Meeting Abstract Paper Awards

Presentation: Opening Session, Monday, July 27
8:00 – 9:30 a.m.

Outstanding Pharmaceutical Paper Award

Cosponsored by PharmaCircle

This award recognizes a CRS member whose winning abstract relates specifically to pharmaceutical research.

A New Structural Design of a Closed-Loop Insulin Delivery Implant Extends the Duration of Insulin Efficacy in a Type 1 Diabetic Rat Model by Impeding Immune Cell Infiltration

Author present:

Monday, July 27, during Poster Session I at poster #61 from 9:30 – 10:30 a.m.

Tuesday, July 28, during Research Highlight Talk in the Delivery of Peptides and Proteins Session, 2:10 – 2:15 p.m.



Jason Li received a master's degree in mechanical and biomedical engineering in 2011 from the University of Toronto, Canada, and is currently a Ph.D. candidate in the Department of Pharmaceutical Sciences at the University of Toronto. His research experience spans the development of nanomaterials-based diagnostic

biosensors, implantable closed-loop drug delivery systems, nano-medicines for drug delivery and imaging applications, and the application of these technologies to both *in vitro* and whole animal models of bone remodeling, diabetes, and cancer.

Jorge Heller Journal of Controlled Release Outstanding Paper Award

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This award recognizes an outstanding regular paper related to the science of controlled release (not an invited, review, or special meeting paper) that was published during 2014 in the Journal of Controlled Release.

Presentation: Plenary Session, Tuesday, July 28
8:00 – 9:30 a.m.



Richard J. Price, Ph.D., is a professor of biomedical engineering at the University of Virginia (UVA). Early in his career, he performed seminal studies demonstrating that microbubble activation with ultrasound could be used to deliver nanoparticles across endothelial barriers. His current research centers on the use of MRI-guided focused

ultrasound for targeting the delivery of drugs and genes across the blood-brain barrier for the treatment of brain tumors and the prevention of Parkinson's neurodegeneration. He is also the research director of the UVA Focused Ultrasound Center. In this capacity, he leads an institution-wide effort to identify, investigate, and translate new focused ultrasound applications.

Non-invasive Delivery of Stealth, Brain-Penetrating Nanoparticles Across the Blood-Brain Barrier Using MRI-Guided Focused Ultrasound

Journal of Controlled Release 189: 123-132 (2014)

Richard J. Price, Elizabeth Nance, Kelsie Timbie, G. Wilson Miller, Ji Song, Cameron Louttit, Alexander L. Klibanov, Ting-Yu Shih, Ganesh Swaminathan, Rafael J. Tamargo, Graeme F. Woodworth, Justin Hanes, and Richard J. Price

Drug Delivery and Translational Research Outstanding Paper Award

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This award recognizes outstanding research in the field of drug delivery and translational research that was published during 2014 in Drug Delivery and Translational Research.

**Presentation: Plenary Session, Tuesday, July 28
8:00 – 9:30 a.m.**



Kanjiro Miyata received his Ph.D. under the supervision of Kazunori Kataoka in the Department of Materials Engineering, University of Tokyo, in 2006. From 2006 to 2009, he worked as an assistant professor in the Department of Bioengineering. In 2009, he moved to the Center for Disease Biology and Integrative Medicine, University of

Tokyo. Since 2013, he has been an associate professor in the center. His main research interest is smart polymeric nanocarriers for nucleic acid delivery.



Kazunori Kataoka, Ph.D., is a professor of biomaterials at the Graduate School of Engineering, University of Tokyo, Japan. He has been appointed to a joint position since 2004 at the Graduate School of Medicine, University of Tokyo, as a professor of clinical biotechnology at the Center for Disease Biology and Integrative Medicine. He

served as a president of the Society of Polymer Science, Japan (2010–2012) and as a president of the Controlled Release Society (2012–2013). He is a founding fellow of the CRS College of Fellows (2010). He is on the editorial and advisory boards of 14 international journals, and he has been the editor of *Journal of Biomaterials Science, Polymer Edition* since 2004. His current major research interest is supramolecular materials for nanobiotechnology, particularly focusing on drug and gene targeting, and he has published more than 500 papers with an h-index of 113 (Google Scholar).

Multifunctional Polyion Complex Micelle Featuring Enhanced stability, Targetability, and Endosome Escapability for Systemic siRNA Delivery to Subcutaneous Model of Lung Cancer
Drug Delivery and Translational Research 4: 50–60 (2014)
Hyun Jin Kim, Takehiko Ishii, Meng Zheng, Sumiyo Watanabe, Kazuko Toh, Yu Matsumoto, Nobuhiro Nishiyama, Kanjiro Miyata, and Kazunori Kataoka

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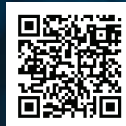
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