APV – Arbeitsgemeinschaft für Pharmazeutische Verfahrenstechnik e. V.

APV NEWS

06 • 2016

Nachrichten und Mitteilungen

MAKING SCIENCE WORK

Arbeitsgemeinschaft für Pharmazeutische Verfahrenstechnik e.V.
Gemeinnütziger wissenschaftlicher Verein
International Association for Pharmaceutical Technology


2nd European Conference on Pharmaceutics
Novel dosage forms, innovative technologies
Krakow, Poland
3 to 4 April 2017
Topics
• From bench to bedside – from innovative technologies to clinical success
• Just married: SMART devices and SMART drugs
• Enabling technologies for poorly bioavailable drugs
• Novel delivery strategies for non-Lipinski molecules
• Novel strategies to overcome physiological barriers
JAGIELLONIAN UNIVERSITY MEDICAL COLLEGE
HONORARY PATRONAGE
See you in Krakow!
www.europeanmeeting.org

Lokale Gruppen

Montag, 14. November 2016

Lokale Gruppen Oberbayern ab 19:00 h im Augustiner Schützengarten, Zielstattstraße 6, 81379 München (Weitere Informationen zur Lokalität entnehmen Sie bitte folgendem Link: http://augustiner-schuetzengarten.de/).
Weitere Informationen und Angaben zu den nächsten Terminen erhalten Sie bei Dr. (USA) Julia Schulze-Nahrup (jsn@pharmoveo.de)

Mittwoch, 23. November 2016

Lokale APV-Gruppe Rhein-Main ab 19:30 Uhr. Der Ort wird noch bekanntgegeben.
Weitere Informationen erhalten Sie bei Cathrin Pauly (pauly@aspiras.de).

Mittwoch, 18. Januar 2017

Lokale APV-Gruppe Berlin um 19:00 Uhr. Der Veranstaltungsort wird noch bekanntgegeben.
Anmeldung erforderlich bis zum 10. Januar 2017 bei Dr. Andreas Sachse (andreas.sachse@cpl-sachse.de).

Lokale APV-Gruppe Basel ab 19:30 Uhr im Restaurant Gifthüttli (http://www.gifthuettli.ch/).
Weitere Informationen und Angaben zu den nächsten Terminen erhalten Sie bei Dr. Julia Matilainen (julia.matilainen@roche.com).

Lokale APV-Gruppe Westfalen ab 19:30 Uhr in Hövels Hausbrauerei (Hoher Wall 5-7, 44137 Dortmund, Tel.: 0231/914547-0, www.hoevels-hausbrauerei.de).
Weitere Informationen und Angaben zu den nächsten Terminen erhalten Sie bei Dr. Johanna Mosig (johanna.mosig@bayer.com).

Lokale APV-Gruppe Köln/Bonn/Aachen ab 19:00 Uhr in Peters Brauhaus (Mühlengasse 1, 50667 Köln, www.peters-brauhaus.de) statt.
Weitere Informationen und Angaben zu den nächsten Terminen erhalten Sie bei Dr. Heiko Spilgies (heiko@spilgies.de).

Liebe APV-Mitglieder,

nach der erfolgreichen Gründung mehrerer lokaler Gruppen würden wir das Konzept der lokalen APV-Gruppen gerne auch in weiteren Regionen etablieren. Bitte sprechen Sie uns an, wenn Sie Interesse an einer Teilnahme an einer lokalen Gruppe in Ihrer Region haben oder als Ansprechpartner, unterstützt durch die APV-Geschäftsstelle, für eine neue lokale Gruppe zur Verfügung stehen würden.

Wir freuen uns auf Ihre Rückmeldung!

Ansprechpartner: Dr. Martin Bornhöft, Email: mb@apv-mainz.de, Tel: + 49 6131 9769-30

What's hot in European Journal of Pharmaceutics and Biopharmaceutics?

Christoph Marschall, Ludwig-Maximilians-Universität, D-München

T. C. Seem et al./European Journal of Pharmaceutics and Biopharmaceutics 106 (2016) 50–58

Asymmetric distribution in twin screw granulation

Tim Chan Seem, Neil A. Rowson, Ian Gabbott, Marcel de Matas, Gavin K. Reynolds, Andy Ingram

Positron Emission Particle Tracking (PEPT) was successfully employed to validate measured transverse asymmetry in material distribution in the conveying zones of a Twin Screw Granulator (TSG). Flow asymmetry was established to be a property of the granulator geometry and dependent on fill level. The liquid distribution of granules as a function of fill level was determined. High flow asymmetry at low fill level negatively affects granule nucleation leading to high variance in final uniformity. Wetting of material during nucleation was identified as a critical parameter in determining final granule uniformity and fill level is highlighted as a crucial control factor in achieving this. Flow asymmetry of dry material in conveying zones upstream of binder fluid injection leads to poor non-uniform wetting at nucleation and results in heterogeneous final product. The granule formation mechanism of 60 °F kneading blocks is suggested to be primarily breakage of agglomerates formed during nucleation. Optimisation of screw configuration would be required to provide secondary growth. This work shows how fill dependent flow regimes affect granulation mechanisms.

R. Meier et al./European Journal of Pharmaceutics and Biopharmaceutics 106 (2016) 59–69

Granule size distributions after twin-screw granulation – Do not forget the feeding systems

R. Meier, M. Thommes, N. Rasenack, K.-P. Moll, M. Krumme, P. Kleinebudde

The aim of this study was to investigate the influence of qualitatively different powder feeder performances on resulting granule size distributions after twin-screw granulation of a highly drug loaded, hydrophobic mixture and a mannitol powder. It was shown that powder feeder related problems usually cannot be identified by trusting in the values given by the feeder. Therefore, a newly developed model for the evaluation of the performance of powder feeders was introduced and it was tried to connect this model to residence time distributions in twin-screw granulation processes. The influence of feeder performances on resulting granule size distributions varied, depending on the applied screw configuration and the used powder. Regarding the hydrophobic and highly drug loaded formulation, which was granulated at an L/S-ratio of 0.5, a pure conveying screw and a medium kneading configuration, consisting of 60° kneading blocks were negatively influenced by poor feeder settings. For optimal settings more narrow distributions could be obtained. For an extensive kneading configuration good and poor settings resulted in mono-modal granule size distributions but were differing in the overall size. Mannitol, a model substance for a liquid sensitive formulation was granulated at an L/S-ratio of 0.075. It was even more important to maintain optimal feeding as mannitol was highly affected by poor feeder performances. Even an extensive kneading configuration could not level the errors in powder feeder performance, resulting in qualitatively different granule size distributions. The results of this study demonstrate the importance of detailed knowledge about applied feeding systems to gain optimal performance in twin-screw granulation.

M. Pozzoli et al./European Journal of Pharmaceutics and Biopharmaceutics 107 (2016) 223–233

Application of RPMI 2650 nasal cell model to a 3D printed apparatus for the testing of drug deposition and permeation of nasal products

Michele Pozzoli, Hui Xin Ong, Lucy Morgan, Maria Sukkar, Daniela Traini, Paul M. Young, Fabio Sonvico

The aim of this study was to incorporate an optimized RPMI2650 nasal cell model into a 3D printed model of the nose to test deposition and permeation of drugs intended for use in the nose. The nasal cell model was optimized for barrier properties in terms of permeation marker and mucus production. RT-qPCR was used to determine the xenobiotic transporter gene expression of RPMI 2650 cells in comparison with primary nasal cells. After 14 days in culture, the cells were shown to produce mucus, and to express TEER (define) values and sodium fluorescein permeability consistent with values reported for excised human nasal mucosa. In addition, good correlation was found between RPMI 2650 and primary nasal cell transporter expression values. The purpose-built 3D printed model of the nose takes the form of an expansion chamber with inserts for cells and an

orifice for insertion of a spray drug delivery device. This model was validated against the FDA glass chamber with cascade impactors that is currently approved for studies of nasal products. No differences were found between the two apparatus. The apparatus including the nasal cell model was used to test a commercial nasal product containing budesonide (Rhinocort, AstraZeneca, Australia). Drug deposition and transport studies on RPMI 2650 were successfully performed.
The new 3D printed apparatus that incorporates cells can be used as valid in vitro model to test nasal products in conditions that mimic the delivery from nasal devices in real life conditions.

F. Bickel et al./European Journal of Pharmaceutics and Biopharmaceutics 107 (2016) 310-320

Reversible NaCl-induced aggregation of a monoclonal antibody at low pH: Characterization of aggregates and factors affecting aggregation

Fabian Bickel, Eva Maria Herold, Alba Signes, Stefan Romeijn, Wim Jiskoot, Hans Kiefer

We investigated the influence of pH and sodium chloride concentration on aggregation kinetics of a monoclonal antibody. Aggregation was induced by sodium chloride addition at low pH. Protein conformation before and after salt addition was determined as well as the reversibility of aggregation.

Aggregation was monitored at pH values between 2 and 7 with NaCl up to 1.5 M by turbidity measurement and size-exclusion chromatography. Particle size distribution was assessed by using size-exclusion chromatography as well as nanoparticle tracking analysis and flow imaging microscopy. Structural changes were monitored by circular dichroism, Fourier transform infrared and fluorescence spectroscopy. Thermal stability was measured by differential scanning fluorimetry.
Aggregation propensity was maximal at low pH and high ionic strength. While thermal stability decreased with pH, the secondary structure remained unchanged down to pH 3.5 and up to 1.5 M NaCl. Precipitated protein could be largely reverted to monomers by dilution into salt-free buffer. The resolubilized antibody was indistinguishable in structure, solubility and monodispersity from the unstressed protein. Also, binding to Protein A was steady. Aggregation could be reduced in the presence of trehalose.

The results suggest a reversible aggregation mechanism characterized by a limited change in tertiary structure at low pH and a subsequent loss of colloidal stability resulting from electrostatic repulsion once salt is added to the sample. The experimental setup is robust and allows high-throughput quantification of the effect of additives on aggregation kinetics.

Impressum:

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Dr. Martin Bornhöft (Leiter Geschäftsstelle)

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JETZT NEU: Leasing auch für andere Investitionsgüter

Leasing und Finanzierung von Investitionsgütern zu günstigen Konditionen für APV-Mitglieder:

- ✔ schont das Eigenkapital
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Sehr interessant auch für Hersteller von Maschinen für die Pharmaindustrie:

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Die APV hat für ihre Mitglieder einen Rahmenvertrag mit einem bekannten Leasing-Unternehmen geschlossen. Als Kooperationspartner der APV bietet das Unternehmen Leasing von Neu- und Gebrauchtfahrzeugen zu Sonderkonditionen. Alle Marken und Modelle sind lieferbar. Die nachfolgende Tabelle gibt nur wenige aktuelle Beispiele möglicher Modelle und Marken wieder. **NEU:** Vorführwagen (VFW) aus dem Leasing-Pool und Dienst-/Werkswagen (DW) zu attraktiven Konditionen erhältlich.

Alle Preise in Euro zuzüglich gesetzlicher Mehrwertsteuer. Beschaffung durch die Leasing-Gesellschaft. 36 Monate Laufzeit, 15.000 km pro Jahr, Angebote freibleibend. Der Nachlass auf den Listenpreis ist in die ermäßigte Rate einkalkuliert. Sonderkonditionen für Fahrzeuge der Marke Toyota auch für Privatkunden!

Anfragen bitte an **apv@apv-mainz.de**, das Leasing-Unternehmen wird sich dann mit Ihnen in Verbindung setzen.

Kfz-Leasing: Vorteile für APV-Mitglieder

Hersteller/Typ	Listenpreis	mtl. Rate
Audi A7 Sportback 3.0 TDI quattro 160kW/218PS inkl. S line selection, Business-Paket, Navi, 20"LM-Felgen, PDC, Sitzheizung, LED-Scheinwerfer, Sportsitze etc.	57.613,00 €	599,00 €
BMW X3 xDrive20d 140kW/190PS inkl. Automatic, Navi, PDC, Klimaautomatik, Xenon, Sitzheizung vorne, automatische Heckklappenbetätigung, LM-Felgen etc.	42.462,00 €	449,00 €
LandRover Discovery Sport 2.0l TD4 Pure 110kW/150PS "Vfw" inkl.8-G.Automatik, Klimaautom., Parkpaket, Komfortpaket, Xenon, Winterkomfortpaket, 18"LM-Räder etc.	39.979,00 €	369,00 €
LandRover Range Rover Evoque TD4 110kW/150PS SE "Vfw" inkl.9-G.Automatik, Technikpaket, Navi, elektrische Heckklappe, 19" LM-Räder, Xenon, Assist-System etc.	44.218,00 €	365,00 €
MINI One 3-Türer "Pepper" 75kW/101PS inkl. Metallic, Klimaautomatik, Sitzheizung vorne, PDC, LM-Räder, Regensensor, Licht- und Ablagenpaket, Lederlenkrad etc.	16.866,00 €	199,00 €
Porsche Cayenne Diesel "Platinum" 193kW/262PS inkl.Navigation, Tiptronic S, Luftfederung mit Niveauregulierung und PASM, Panorama Dachsystem, ParkAssistent etc.	69.235,00 €	979,00 €
SEAT Mii Chic 1.0 44kW/60PS inkl. Klimaanlage, PDC hinten, Audiosystem You&Mii Music Plus, LM-Felgen, Tempomat, Sportfahrwerk, Technik-Service etc.	9.626,00 €	79,00 €
Skoda Fabia III Combi 1.0 COOL EDITION 55kW/75PS inkl. Klimaanlage, Musiksystem Swing, Surround Sound, DAB, Scheiben getönt, Pollen- u. Staubfilter etc.	11.983,00 €	119,00 €

Vfw = Vorführwagen zu Sonderkonditionen, DW = Dienst-/Werkswagen (genannter Listenpreis=Kaufpreis)