

# noro 2016

## WELCOME

Dear colleagues,

The University of Lübeck and the Society for the advancement of Glycoscience welcomes you to our second international norovirus meeting **Noroviruses and Beyond – Glycans as Drivers in Viral Infection**. The meeting has brought together over 100 researchers from 17 countries from all over the world, who will share research experiences, techniques, expertise and friendship. We truly appreciate the effort of all of you to come to Germany for these three days of intense scientific interaction.

We would also like to welcome you to the “Queen of Hanseatic Towns”, which with its many cultural treasures is amongst the most beautiful and most visited cities in North Germany. The city has its own flair with an ensemble of churches, merchant’s houses, warehouses and small narrow alleys. The historic center, surrounded by water, has been declared a world heritage site by UNESCO. Lübeck also is the place where tradition and history meet. Voted the city of science (Stadt der Wissenschaft) in 2012, Lübeck integrates science on its scientific path “Hanseatic league meets Humboldt” (Hanse meets Humboldt) through its historic center.

This booklet contains the Scientific Program, 11 keynote lectures, 22 oral presentations, 20 poster presentations, as well as a list of all participants and authors index.

May this meeting be a memorable experience for all of you with the hope that the conference will lead to new combined initiatives in the fields of virology and glycobiology.

From all of the organizers, we wish you a productive and memorable experience in Lübeck.

The Organizers

# noro2016

## ORGANISATION AND IMPRINT

### Venue and Date:

Media Docks Business & Conference Center  
Willy-Brandt-Allee 31a  
23554 Lübeck Tel.: (0) 451 / 2803-1000  
Fax: +49 (0) 451 / 2803-1190  
Web: <http://www.mediadocks.de>



UNIVERSITÄT ZU LÜBECK  
STIFTUNGSUNIVERSITÄT  
SEIT 2015

**March 17-19, 2016**

### Conference Website:

[www.noro2016.de](http://www.noro2016.de)

### Scientific Committee:

Ian Goodfellow, University of Cambridge  
Rolf Hilgenfeld, University of Lübeck  
Gregor Meyers, Friedrich Loeffler-Institute, Riems  
Thomas Peters, University of Lübeck  
Jan Rupp, University of Lübeck  
Thilo Stehle, University of Tübingen  
Stefan Taube, University of Lübeck  
Norbert Tautz, University of Lübeck

### Conference Organisation:

Rolf Hilgenfeld, University of Lübeck  
Gregor Meyers, Friedrich Loeffler-Institute, Riems  
Thomas Peters, University of Lübeck  
Jan Rupp, University of Lübeck  
Stefan Taube, University of Lübeck  
Norbert Tautz, University of Lübeck  
Petra Lipp, University of Lübeck  
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### Verein zur Förderung der Glycowissenschaften e.V.

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## GENERAL MEETING INFORMATION

### Venue

The meeting is held at the Media Docks Business & Conference Center, close to the historic city center opposite the newly opened "Hanse Museum".

### Media Docks Business & Conference Center

Willy-Brandt-Allee 31a

23554 Lübeck

Tel.: +49 451 2803-1000

Web: <http://www.mediadocks.de>

Google Maps: 53.874005, 10.683473

### Meeting Registration

On-site registration for noro2016 as well as distribution of conference materials (name badges, bags, abstract book) will be available at the registration desk throughout the conference. Additional information can be found online: <https://www.noro2016.de>.

### Speakers

Presentations can be developed in Powerpoint or PDF and should be provided on a USB device to our technical staff. Personal laptops can be used in particular cases but are discouraged to avoid delays between talks.

### WIFI

Free WIFI will be available for conference participants on site.

### Parking

There are ample parking spots (parking fee) in front of the conference center. Limited free daily parking tickets can be requested from the registration desk.

## SOCIAL PROGRAM

### Guided Tour of the Maritim Quarter of Lübeck

The guided tour will be in English and lead you through historic alleyways of the maritim quarter of Lübeck. For those interested, we will meet in front of the conference center after the Get-Together on Thursday March 17th at 7:30 pm.

### Reception in the Historic Town Hall

Reception by the Mayor of Lübeck in the historic city hall (inaugurated in 1308) with red wine and marzipan. Niederegger marzipan represents is world renowned and delicious souvenir. We will meet in front of the Cafe Niederegger opposite of the town hall: Breite Str. 89 (Google Maps: 53.866508, 10.685604).

### Conference Dinner

The conference dinner will be on site at the Media Docks Conference Center on Friday, March 18th at 8pm.

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## SCIENTIFIC PROGRAM

Thursday, March 17, 2016

08:00 - 08:45	Registration
08:45 - 09:00	Conference Opening with <b>Hendrik Lehnert</b> (President, University of Lübeck)
<b>Session 1: Calicivirus Molecular Biology</b>	
<b>Chair:</b>	<b>Christiane Wobus</b> (Ann Arbor, MI, USA)
09:00 - 09:45	<b>Keynote I: Ian Goodfellow</b> (Cambridge, United Kingdom) Avoidance and control of the innate response during calicivirus infection
09:45 - 10:05	<b>O1.1 - Steven Curry</b> (London, United Kingdom), New insights into the molecular mechanisms of the initiation of polyprotein synthesis and processing in noroviruses
10:05 - 10:25	<b>O1.2 - Myra Hosmillo</b> (Cambridge, United Kingdom) Characterisation of the mechanism of sapovirus translation initiation (SEE ALSO POSTER P12)
10:25 - 10:45	<b>O1.3 - Sreejesh Shanker</b> (Houston, TX, USA) Structure of a human norovirus in complex with a neutralizing Ig A antibody reveals its mechanism of neutralization
10:45 - 11:15	<b>Coffee Break</b>
11:15 - 12:00	<b>Keynote II: Robert Woods</b> (Athens, GA, USA) A role for underlying glycan structure in influenza binding: extending the species specificity paradigm
12:00 - 13:30	<b>Lunch</b>

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## SCIENTIFIC PROGRAM

Thursday, March 17, 2016

### Session 2: Virus Entry and Models of Infection

Chair:	Ian Goodfellow (Cambridge, United Kingdom)
13:30 - 14:15	<b>Keynote III: Stephanie Karst</b> (Gainesville, FL, USA) Commensal bacterial regulation of norovirus cell tropism and immune response
14:15 - 14:35	<b>O2.1 - Gustav Rydell</b> (Gothenburg, Sweden) Norovirus glycosphingolipid interactions
14:35 - 14:55	<b>O2.2 - Mario Schelhaas</b> (Münster, Germany) Complex conformational changes in the capsid prime the papillomavirus capsid for receptor switching and entry
14:55 - 15:15	<b>O2.3 - Samantha Wales</b> (Laurel, MD, USA) Using the human gut-on-a-chip system as a culture model for enteric virus infection (SEE ALSO POSTER P13)
15:15 - 15:45	<b>Coffee Break</b>
15:45 - 16:30	<b>Keynote IV: Christiane Wobus</b> (Ann Arbor, MI, USA) Norovirus entry into the Intestine
16:30 - 19:30	<b>Get Together &amp; Poster Session with Beer &amp; Pretzel</b>
19:30 - 20:30	Guided Tour - Historic Lübeck

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## SCIENTIFIC PROGRAM

Friday, March 18, 2016

### Session 3: Antiviral Drug Design

<b>Chair:</b>	<b>Raoul de Groot</b> (Utrecht, Netherlands)
09:00 - 09:45	<b>Keynote V: Mark von Itzstein</b> (Brisbane, Australia) From viral glycan receptors to drugs
09:45 - 10:05	<b>O3.1 - Joana Rocha-Pereira</b> (Leuven, Belgium), The viral polymerase inhibitor 2'-C-methylcytidine sets the benchmark for the development of novel norovirus antivirals
10:05 - 10:25	<b>O3.2 - Anna Koromyslova</b> (Heidelberg, Germany) Under attack: nanobodies targeting human norovirus capsid
10:25 - 10:45	<b>O3.3 - Mila Leuthold</b> (Heidelberg, Germany) Analysis of fucosylated synthetic compounds binding to the norovirus capsid
10:45 - 11:15	<b>Coffee Break</b>

### Session 4: Epidemiology, Evolution and Clinical Aspects I

<b>Chair:</b>	<b>Marion Koopmans</b> (Rotterdam, Netherlands)
11:15 - 11:45	<b>Keynote VI: Fred Zepp</b> (Mainz, Germany) Burden of community acquired norovirus gastroenteritis among hospitalized patients in Germany <small>Keynote is sponsored by TAKEDA PHARMACEUTICALS</small>

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Friday, March 18, 2016

11:45 - 12:00	<b>O4.1 - Dieter Hoffmann</b> (Munich, Germany) Intra individual noroviral evolution analyzed by next generation sequencing
12:00 - 12:15	<b>O4.2 - Soizick F. Le Guyader</b> (Nantes, France) Norovirus and oysters: impact of the species and of its genetic diversity (SEE ALSO POSTER P14)
12:15 - 13:45	<b>Lunch</b>
<b>Session 5: Epidemiology, Evolution and Clinical Aspects II</b>	
<b>Chair:</b>	<b>Jacques Le Pendu</b> (Nantes, France)
13:45 - 14:00	<b>O5.1 - Susana Guix</b> (Barcelona, Spain) Norovirus infections among symptomatic and asymptomatic food and healthcare workers in outbreak settings
14:00 - 14:15	<b>O5.2 - Janet Mans</b> (Pretoria, South Africa) Norovirus epidemiology and diversity in South Africa (2009-2015): NoV GII.17 emerging
14:15 - 14:30	<b>O5.3 - Louisa Ludwig</b> (University of Liège, Belgium) Regain of fitness through <i>in vitro</i> replication for a recombinant murine norovirus (SEE ALSO POSTER P15)
14:30 - 14:45	<b>O5.4 - Lydia Drumright</b> (Cambridge, United Kingdom) TaqMan Array Card assay is more sensitive than conventional RT-qPCR in detecting norovirus
14:45 - 15:30	<b>Keynote VII: Marion Koopmans</b> (Rotterdam, Netherlands) Norovirus diversity and clinical impact, state of the art and knowledge gaps
15:30 - 16:00	<b>Coffee Break</b>

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## SCIENTIFIC PROGRAM

Friday, March 18, 2016

### Session 6: Glycans as Drivers in Viral Infection I

<b>Chair:</b>	<b>Thilo Stehle (Tübingen, Germany)</b>
16:00 - 16:45	<b>Keynote VIII: Jacques Le Pendu (Nantes, France)</b> Glycans in enteric virus infection
16:45 - 17:05	<b>O6.1 - Jesus Rodriguez-Diaz (Valencia, Spain)</b> Characterization of a novel conformational GI4 norovirus epitope: Implications in the immune escape and host receptor interactions (SEE ALSO POSTER P16)
17:05 - 17:25	<b>O6.2 - Zhen Li (London, United Kingdom)</b> Pinpointing epithelial glycan receptors for rotaviruses by a novel 'designer' microarray approach (SEE ALSO POSTER P17)
17:25 - 17:45	<b>O6.3 - Michael Buch (Tübingen, Germany)</b> Structural and functional analysis of murine polyomavirus capsid proteins establish the determinants of ligand recognition and pathogenicity
18:30 - 19:30	<b>Reception by the Mayor of Lübeck in the Historic Town Hall</b>
20:00 -	<b>Conference Dinner at the Media Docks</b>



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## SCIENTIFIC PROGRAM

Saturday, March 19, 2016

### Session 7: Vaccines R&D and Modeling

<b>Chair:</b>	<b>Stephanie Karst</b> (Gainesville, FL, USA)
09:00 - 09:45	<b>Keynote IX: Benjamin Lopman</b> (Atlanta, GA, USA) Modeling norovirus transmission and vaccination: implications of heterogeneity in innate human susceptibility
09:45 - 10:15	<b>Coffee Break</b>

### Session 8: Glycans as Drivers in Viral Infection II

<b>Chair:</b>	<b>Mark von Itzstein</b> (Brisbane, Australia)
10:15 - 11:00	<b>Keynote X: Thilo Stehle</b> (Tübingen, Germany) Glycan-based viral receptors and their usefulness for antiviral therapy
11:00 - 11:15	<b>O8.1 - Luisa Ströh</b> (Tübingen, Germany) Structural analysis and evolution of glycan receptor specificities of newly discovered human polyomaviruses
11:15 - 11:30	<b>O8.2 - Julia Lockhauserbäumer</b> (Hamburg, Germany) Specific glycans increase the success of viral infections: native MS reveal glycan mediated structural changes during cell attachment (SEE ALSO POSTER P18)
11:30 - 12:30	<b>Lunch / Boxed Lunch</b>

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Saturday, March 19, 2016

12:30 - 12:45	<b>O8.3 - Stefan Taube</b> (Lübeck, Germany) Human norovirus GII.4 P dimer contains multiple binding sites for sialic acids and histo-blood group antigens (SEE ALSO POSTER P19)
12:45 - 13:00	<b>O8.4 - Alvaro Mallagaray</b> (Lübeck, Germany) Attachment of norovirus to histo-blood group antigens and gangliosides: a cooperative multistep process (SEE ALSO POSTER P20)
13:00 - 13:45	<b>Keynote XI: Raoul de Groot</b> (Utrecht, Netherlands) Virus-sialic acid interactions: sweet but not that sweet
13:45 - 14:00	<b>Closing Remarks and Poster Prize</b>

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## SCIENTIFIC PROGRAM

### Keynotes

KEYNOTE I: THURSDAY, MARCH 17<sup>TH</sup> 09:00 - 09:45

**IAN GOODFELLOW (CAMBRIDGE, UNITED KINGDOM)**

Avoidance and control of the innate response during calicivirus infection

KEYNOTE I: THURSDAY, MARCH 17<sup>TH</sup> 11:15 - 12:00

**ROBERT WOODS (ATHENS, GA, USA)**

A role for underlying glycan structure in influenza binding: extending the species specificity paradigm

KEYNOTE III: THURSDAY, MARCH 17<sup>TH</sup> 13:30 - 14:15

**STEPHANIE KARST (GAINSVILLE, FL, USA)**

Commensal bacterial regulation of norovirus cell tropism and immune response

KEYNOTE IV: THURSDAY, MARCH 17<sup>TH</sup> 15:45 - 16:30

**CHRISTIANE WOBUS (ANN ARBOR, MI, USA)**

Norovirus entry into the Intestine

KEYNOTE V: FRIDAY, MARCH 18<sup>TH</sup> 09:00 - 09:45

**MARK VON ITZSTEIN (BRISBANE, AUSTRALIA)**

From viral glycan receptors to drugs

KEYNOTE VI: FRIDAY, MARCH 18<sup>TH</sup> 11:15 - 11:45

**FRED ZEPP (MAINZ, GERMANY)**

Burden of community acquired norovirus gastroenteritis among hospitalized patients in Germany

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### Keynotes

KEYNOTE VII: FRIDAY, MARCH 18<sup>TH</sup> 14:45 - 15:30

**MARION KOOPMANS (ROTTERDAM, NETHERLANDS)**

Norovirus diversity and clinical impact, state of the art and knowledge gaps

KEYNOTE VIII: FRIDAY, MARCH 18<sup>TH</sup> 16:00 - 16:45

**JACQUES LE PENDU (NANTES, FRANCE)**

Glycans in enteric virus infection

KEYNOTE IX: SATURDAY, MARCH 19<sup>TH</sup> 09:00 - 09:45

**BENJAMIN LOPMAN (ATLANTA, GA, USA)**

Modeling norovirus transmission and vaccination: implications of heterogeneity in innate human susceptibility

KEYNOTE X: SATURDAY, MARCH 19<sup>TH</sup> 10:15 - 11:00

**THILO STEHLE (TÜBINGEN, GERMANY)**

Glycan-based viral receptors and their usefulness for antiviral therapy

KEYNOTE XI: SATURDAY, MARCH 19<sup>TH</sup> 13:00 - 13:45

**RAOUL DE GROOT (UTRECHT, NETHERLANDS)**

Virus-sialic acid interactions: sweet but not that sweet

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## SCIENTIFIC PROGRAM

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