Workshop

Liver-Gut-Microbiome Interactions

January 25–26, 2018
Radisson Blu Hotel
Hamburg, Germany

Program

Organized by:
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7 credit hours (CME) have been awarded for the Workshop by the European Union of Medical Specialists (UEMS) - European Board of Gastroenterology.
Preface

Dear colleagues,

It is a great pleasure for us to welcome you to the GASL Research Workshop 2018 organized by the Falk Foundation e.V. entitled “Liver-Gut-Microbiome Interactions” in Hamburg.

Over the last decade immune-mediated diseases in several organs including the liver such as autoimmune hepatitis (AIH) and primary sclerosing cholangitis (PSC) have been increasing. These diseases are characterized by a dysregulated immune response promoting a vicious circle leading to chronic disease and organ failure. Over recent years it has been shown that the intestine impacts on these immune-mediated liver diseases. This connection between the intestine and the liver is obvious in PSC, which is strongly associated with inflammatory bowel disease (IBD). However, recent findings also imply a key role of the intestine in the development of non-alcoholic steatohepatitis (NASH) and AIH. The microbiome is one key component which influences the intestinal immune system and thereby probably also liver disease.

In general, the relationship between the host and the microbiota is considered peaceful and even mutualistic. Mammals have evolved indeed a complex mucosal immune system, composed of epithelial cells, stromal cells and hematopoietic cells, including regulatory and effector T cells to avoid inflammation in the intestine as a response to microbiota. Interestingly, the balance between all these players does not only impact intestinal disease, but also liver disease. However, the cellular and molecular mechanisms explaining the connection between the intestine, the microbiota and the liver are unclear.

For this reason, the focus of the GASL Research Workshop is liver-gut-microbiome interactions. During this workshop, outstanding international experts will discuss the most recent findings regarding this exciting topic. There will be an accompanying poster session on both days. The workshop will be followed by the annual meeting of the German Association for the Study of the Liver 2018, to which we would also like to extend an invitation to you.

We hope that you will enjoy the workshop and the opportunity to take part in fruitful discussions in a familiar atmosphere. Last but not least, we hope that you will enjoy staying in Hamburg, one of the biggest European metropolitan areas located in the north of Germany.

Nicola Gagliani                Samuel Huber                Ansgar W. Lohse                Christoph Schramm
Liver-Gut-Microbiome Interactions

January 25–26, 2018
Radisson Blu Hotel
Hamburg, Germany

The 34th Annual Meeting of the German Association for the Study of the Liver will follow the Workshop:
January 26, 13.15 h to January 27, 14.30 h

Workshop Venue:
Radisson Blu Hotel
Marseiller Str. 2
20355 Hamburg

GASL Venue:
Bucerius Law School
Helmut Schmidt Auditorium
Jungiusstraße 6
20355 Hamburg

The Workshop is organized by Falk Foundation e.V.

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Scientific Co-Organization:
N. Gagliani, Hamburg
S. Huber, Hamburg
C. Schramm, Hamburg

Official Language:
English

Call for Posters:
A poster session will take place. For details see page 9.
Thursday, January 25, 2018

12.00 Lunch with poster session

13.00 Welcome and opening remarks

13.10 Intestinal inflammation and its relevance for the liver

13.35 DC as central players of mucosal immunology

14.00 Mucosal barrier function in health and disease

14.25 State-of-the-Art Lecture:
   IL-10-producing Tr1 regulatory cells:
   from the bench to the bedside

15.00 Coffee break with poster session
# Thursday, January 25, 2018

## Session II

**Microbiome**

**Chair:** J.G. Bode, Düsseldorf; A. Stallmach, Jena

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Presenter</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.30</td>
<td>Diet and microbiota: Potential for therapeutic interventions</td>
<td>S.C. Bischoff</td>
<td>Stuttgart</td>
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<tr>
<td>15.55</td>
<td>How genes shape our microbiota</td>
<td>A. Franke</td>
<td>Kiel</td>
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<tr>
<td>16.20</td>
<td>Neonatal imprinting of tolerogenic properties in gut-draining lymph nodes by microbiota</td>
<td>J. Hühn</td>
<td>Braunschweig</td>
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<tr>
<td>16.45</td>
<td>Regulation of mucosal immunity and barrier function by the intestinal microbiota</td>
<td>T. Strowig</td>
<td>Braunschweig</td>
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<tr>
<td>17.10</td>
<td>Lipid metabolism, microbiota and inflammation</td>
<td>J. Heeren</td>
<td>Hamburg</td>
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## Oral Poster Presentations

<table>
<thead>
<tr>
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<th>Title</th>
<th>Presenter</th>
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<tbody>
<tr>
<td>17.35</td>
<td>A novel mouse model to study IL-6/gp130 signaling and acute-phase proteins in the gut-liver axis</td>
<td>N. Schumacher</td>
<td>Kiel</td>
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<tr>
<td>17.45</td>
<td>Inhibition of gut microbiota can be a therapeutic target to reduce liver fibrosis</td>
<td>F. Mohamed</td>
<td>Mannheim</td>
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<tr>
<td>17.55</td>
<td>IgA antibodies against filamentous-actin are frequently detected in patients with cirrhosis and indicate a progressive disease course</td>
<td>M. Papp</td>
<td>Debrecen</td>
</tr>
<tr>
<td>18.05</td>
<td>L-selectin (CD62L) is increased in patients with ulcerative colitis and drives the progression of non-alcoholic steatohepatitis (NASH) in mouse and men.</td>
<td>H. Drescher</td>
<td>Aachen</td>
</tr>
</tbody>
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18.15  **Scientific discussion with snacks**
Friday, January 26, 2018

Session III
Metabolism and inflammation
Chair: N. Gagliani, Hamburg; M.F. Neurath, Erlangen

8.30  Fatty liver disease: Role model of immunometabolic diseases?  F. Tacke, Aachen

8.55  Influence of diurnal factors on the microbiome  E. Elinav, Rehovot

9.20  State-of-the-Art Lecture:
How to maintain liver immune tolerance  P.A. Knolle, Munich

10.05  Coffee break with poster session

Session IV
Liver inflammation
Chair: R. Thimme, Freiburg; C. Trautwein, Aachen

10.45  Type I IFN in liver fibrosis; an indisputable harassing factor  Z. Abdullah, Bonn

11.10  Adaptive immune cells and liver inflammation  M. Iannacone, Milan

11.35  Consequences of liver inflammation –
The role of IL-22 and IL-22BP  S. Huber, Hamburg

12.00  Therapeutic targets in the liver gut axis –
Evolving concepts  D.H. Adams, Birmingham

12.25  Closing remarks

12.30  Lunch at University Hamburg, West Building,
Rooms 220 & 221, Edmund-Siemers-Allee 1

Attention! New Location:
Bucerius Law School, Helmut Schmidt Auditorium,
Jungiusstraße 6, 20355 Hamburg

13.15  Opening of the Annual Meeting of the GASL
### Poster Session

Posters will be exhibited on January 25–26, 2018 at Radisson Blu Hotel Hamburg. The authors will be in attendance during coffee and lunch breaks on both days. The setting up of the poster session starts on Thursday, January 25, 2018 at 10.00 h. The authors are asked to mount their poster on Thursday.

1. Morpho-functional changes of lymphoid thymus cells on the background of prolonged use of proton-pump inhibitors  
   (Kiev, Poltava, UA)

2. NAFLD and intestinal microbiota: Clinical parallels  
   I. Bakulin, M.P. Abatsieva, L.N. Belousova (St. Petersburg, RU)

3. The influence of an altered microbiota and PSC on colitis severity  
   S. Bohmann, T. Bedke, C. Haueis, N. Gagliani, S. Huber (Hamburg, DE)

4. Mechanisms how gut-derived bacterial toxin (LPS) affects liver cells  
   K. Breitkopf-Heinlein, H. Gaitantzi, C. Cai, M.P. Ebert (Mannheim, DE)

5. L-selectin (CD62L) is increased in patients with ulcerative colitis and drives the progression of non-alcoholic steatohepatitis (NASH) in mouse and men  
   H. Drescher, A. Schippers, H. Sahin, C. Trautwein, D. Kroy (Aachen, DE)

   K. Dvorak, Y. Barbora, A. Hovorkova, J. Vejrychova (Liberec, CZ)

7. Analysis of murine and human histone deacetylase 7 expression in fibrosis and its subcellular localization during inflammation  
   K. Freese, J. Sommer, C. Hellerbrand (Erlangen, DE)

8. A novel MAPK14-ATF2-microRNA axis contributes to hepatocellular carcinoma progression and sorafenib resistance  
   V. Fritz, L. Malek, C. Hellerbrand, A.K. Bosserhoff, P. Dietrich (Erlangen, DE)

9. Human 3-dimensional intestinal and liver organoids: In vitro model system to study the gut-liver axis  
   H. Gaitantzi, C. Cai, N. Rindtorff, J. Betge, M.P. Ebert, K. Breitkopf-Heinlein  
   (Mannheim, Heidelberg, DE)

10. Expression and function of neuroblastoma RAS viral oncogene homolog in hepatocellular carcinoma  
    A. Gaza, C. Hellerbrand, A.K. Bosserhoff, P. Dietrich (Erlangen, DE)

11. The role of IL-22 and IL-22BP in liver metastasis  
    A. Giannou, J. Kempski, L. Garcia Perez, A.M. Shiri, L. Brockmann, D. Zazara,  
    J. Lücke, L. Zhao, T. Bedke, T. Agalioti, N. Gagliani, S. Huber (Hamburg, DE)

12. Reduction of carcinogenesis-associated pathways by pharmacological inhibition of the cannabinoid receptor 1 in the murine Abcb4-/- mouse model  
    N.L. Helmrich, Y. Churin, A. Tschuschner, M. Roderfeld, E. Roeb (Gießen, DE)
13. Dietary cholesterol promotes transition from hepatic steatosis to steatohepatitis/NASH particularly in combination with a PUFA-rich Western-type diet
   J. Henkel, M. Kuna, D. Coleman, F. Gellert, J.P. Castro, G. Püschel (Nuthetal, DE)

14. Identification of the binding peptide sequence of cytokeratin 18 to the large hepatitis B surface protein
   A. Huhn, Y. Churin, D. Glebe, T. Eckert, D. Schröder, M. Roderfeld, E. Roeb (Gießen, Idstein, DE)

15. Hepatic CD36-dependent accumulation of lipids in HBs transgenic mice
   K. Irungbam, Y. Churin, A. Tschuschner, D. Leder, M. Roderfeld, E. Roeb (Gießen, DE)

16. Beneficial effects of vitamin D treatment in an obese mouse model of non-alcoholic steatohepatitis
   D. Jahn, D. Dorbath, S. Kircher, H.M. Hermanns, A. Geier (Würzburg, DE)

17. Pilot single-center study of measurement of liver stiffness of patients with ulcerative colitis and Crohn’s disease on long-term therapy with thiopurines
   G. Karampekos, G. Fillipidis, N. Viazis, G.J. Mantzaris (Athens, GR)

18. Prospective, longitudinal cohort study of the pathologic increase in liver stiffness: Early diagnosis of liver disease in cystic fibrosis
   V. Klotter, C. Gunchick, E. Siemens, H. Hudel, M. Roderfeld, E. Roeb (Gießen, DE)

19. Effects of combined low-dose spironolactone plus vitamin E vs. vitamin E monotherapy on insulin resistance, non-invasive indices of steatosis and fibrosis, and adipokine levels in non-alcoholic fatty liver disease: A randomized controlled trial
   J. Kountouras, S.A. Polyzos, C.S. Mantzoros, V. Polymerou, P. Katsinelos, M. Doulberis (Thessaloniki, Athens, GR; Boston, US; Solothurn, CH)

20. Serum sterol levels indicate distorted cholesterol homeostasis in cirrhotic patients with primary biliary cholangitis
   M. Krawczyk, E. Wunsch, D. Lütjohann, F. Lammert, P. Milkiewicz (Homburg, Bonn, DE; Szczecin, Warsaw, PL)

21. The intestinal microbiota of patients with PSC are different from healthy controls and patients with ulcerative colitis across geographical regions

22. Combined effects of curcumin and xanthohumol in in vitro models of hepatic steatosis and fibrosis
   A. Mahli, T. Seitz, A. Chiet, C. Hellerbrand (Erlangen, DE)

23. Inhibition of gut microbiota can be a therapeutic target to reduce liver fibrosis
   F. Mohamed, S. Dooley, N. Davies, S. Hammad, A. Habtesion, R. Jalan (Mannheim, DE; London, GB; Qena, Minia, EG)
24. Schistosoma mansoni activates protooncogene c-Jun in hamster model  
   S. Padem, C.G. Grevelding, T. Quack, Y. Churin, A. Tschuschner, M. Roderfeld,  
   E. Roeb (Gießen, DE)

25. Microbiota-dependent effects of IL-22  
   P. Pelczar, M. Said, M. Böttcher, S. Huber (Hamburg, DE)

26. Oral probiotic administration influences pro- and anti-inflammatory cytokines in  
   NAFLD  
   O.M. Plehutsa, I.R. Sydorchuk, A.R. Sydorchuk, L.P. Sydorchuk, O. Khomko,  
   I.I. Sydorchuk, R.I. Sydorchuk, O.B. Rusak (Chernivtsi, UA; Frankfurt, DE)

27. 12/15-Lipoxygenase-deficient mice show exacerbated experimental colitis and  
   alterations in epithelial proliferation  
   M. Ragab, A. Sünderhauf, K. von Medem, F. Bär, R. Pagel, A. Künstner, C. Sadik,  
   S. Derer, C. Sina (Lübeck, DE)

28. IL-13 knockout reduces the activation of ER stress associated pathways in  
   Abcb4-/- mice  
   M. Roderfeld, L. Hahn, A. Tschuschner, E. Roeb (Gießen, DE)

29. Optimisation of liver cell quantification in 3D scaffolds  
   M. Ruoß, C. Grom-Baumgarten, L. Olde Damink, S. Lee, A.K. Nüssler (Tübingen,  
   Herzogenrath, Munich, DE)

30. Effects of short-term dietary changes on immune system and beyond  
   N. Schaltenberg, L. Fromann, P. Scognamilio, T. Agalioti, A. Fischer, P. Pelzcar,  
   A. Worthmann, R. Wahib, M. Heine, L. Scheja, S. Huber, J. Heeren, N. Gagliani  
   (Hamburg, DE; Solna, SE)

31. Knockout of endocannabinoid receptor 1 reduces hepatic steatosis in a mouse  
   model of chronic hepatitis B  
   F. Schneider, K. Irungbam, Y. Churin, M. Roderfeld, E. Roeb (Gießen, DE)

32. A novel mouse model to study IL-6/gp130 signaling and acute-phase proteins in  
   the gut-liver axis  
   N. Schumacher, M. Müller, K. Lücke, T. Wunderlich, H. Lotter, N. Gagliani,  
   H.-W. Mittrücker, A. Rehman, S. Rose-John, D. Schmidt-Arras (Kiel, Hamburg,  
   Cologne, DE)

33. Xanthohumol, a prenylated chalcone derived from hops, inhibits hepatic  
   metastasis of tumor cells  
   T. Seitz, P. Dietrich, C. Hackl, A. Mahli, S. Lang, A.K. Bosserhoff, C. Hellerbrand  
   (Erlangen, Regensburg, Freiburg, DE)

34. Effect of diet, physical activity, sleep and defecation on quality of life  
   K.A. Shemerovskii (St. Petersburg, RU)

35. Epithelial cell-derived complement component 3 is involved in intestinal immune  
   responses during chronic colitis  
   K. Skibbe, A. Sünderhauf, S. Preisker, K. Ebbert, A. Verschoor, C.M. Karsten,  
   C. Kemper, M. Basic, A. Bleich, C. Sina, S. Derer (Lübeck, Hannover, DE;  
   Bethesda, US; London, GB)
36. Analysis of the effects of ethanol on expression of factors promoting hepatic metastasis in hepatoma and melanoma cells
   J. Sommer, K. Freese, C. Hellerbrand (Erlangen, DE)

37. Analysis of the interaction between inflammatory bowel disease and liver pathology in a murine model
   N. Steffens, T. Bedke, S. Huber (Hamburg, DE)

38. Saccharin supplementation modulates the intestinal microbiome and is protective in early stages of experimental colitis

39. Linking mucus depletion and microbiome alterations in UC to mucosal energy supply

40. Possible common genetic background for metabolic and immune disorders in hepatic steatosis, obesity and hypertension
   A.R. Sydorchuk, L.P. Sydorchuk, O.M. Plehutsa, Y. Yarynych, R.I. Sydorchuk, I.I. Sydorchuk (Chernivtsy, UA)

41. ACE (I/D) and AGTR1 (A1166C) genes single nucleotide polymorphisms, non-alcoholic fatty liver disease and intestinal dysbiosis

42. Intestinal barrier suffer major impact in acute enteral dysfunction syndrome due to gut microflora, antiendotoxin core antibodies and nitric oxide associated vicious circle

43. IgA antibodies against filamentous-actin are frequently detected in patients with cirrhosis and indicate a progressive disease course

44. Functional polymorphisms of innate immunity pattern recognition receptors do not constitute the risk of bacterial infections other than spontaneous bacterial peritonitis and also not the progressive disease course in patients with cirrhosis

45. Single microRNA modulation in hepatocytes: A promising treatment for liver fibrosis
   H.-C. Tsay, Q. Yuan, A. Balakrishnan, M. Kaiser, M. Farid, S. Möbus, A. Kispert, M.P. Manns, M. Ott, A.D. Sharma (Hannover, DE; Cairo, EG)
46. Nrf2 and c-Met on hepatocytes is protective during the development of non-alcoholic steatohepatitis (NASH)
   L. Van den Burg, H. Drescher, S. Erschfeld, C. Trautwein, D. Kroy (Aachen, DE)

47. German HCV(1b)-Anti-D cohort – Long-term history and treatment results
   M. Wiese; East German HCV Study Group (Leipzig, DE)

48. Characterization of primary sclerosing cholangitis (PSC)-associated inflammatory bowel disease
   A.F. Wittek, B. Steglich, S. Huber (Hamburg, DE)
List of Speakers, Moderators and Scientific Organizers

Dr. Zeinab Abdullah  
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**Congress Office**

**During** the Workshop in Hamburg

**Congress Office Telephone:** +49-175-7795-327

**Opening Hours:**
- Thursday, January 25, 2018 10.00 – 18.30 h
- Friday, January 26, 2018 7.30 – 12.30 h

Radisson Blu Hotel
Marseiller Str. 2
20355 Hamburg

**Conflicts of Interest**

Members of the scientific committee declare following potential Conflicts of Interest: Samuel Huber: Novartis, Abbvie, Jansen; Nicola Gagliani, Ansgar W. Lohse and Christoph Schramm declare no Conflicts of Interest.

**Admission to Scientific Program**

For admission to scientific events your name badge should be clearly visible.

The 34th Annual Meeting of the German Association for the Study of the Liver will take place immediately following the Workshop (January 26 and 27, 2018).
Directions to Workshop Venue

By Car:
From A7, A24 or A1 follow the signs “Innenstadt (City Center) / Centrum CCH (Congress Center Hamburg)”. The hotel is located at Marseiller Straße.

Parking:
The Hotel provides an underground carpark (approx. 25,00 € per day)
Address for navigation systems: “DAG-Hammarskjöld-Platz, Hamburg”

By Train:
All IC and ICE trains will stop at “Dammtor” Station, which is located only 50 meter from the hotel. Also the Subway Lines S11, S21 and S31 will stop at this station.

From Hamburg Airport:
The hotel is approx. 12km from the airport away. By taxi you will need approx. 20-30 min. Alternatively you can take the train within approx. 20 min. to “Dammtor” Station.

Directions to GASL Venue:
The Bucerius Law School is just around the corner of the Radisson Blu Hotel and can be reached within 6 minutes by foot.
HALF A CENTURY OF PROMOTING MEDICAL EXCHANGE

Conferences that advance medicine and research: 50 years ago, Herbert Falk, MD, PhD, organized a week-long event in Freiburg devoted to the liver – it was his first symposium and the start of an extraordinary success story. Since then, 207 additional events have been held worldwide, featuring speakers who are pioneers in their fields. To date, more than 130,000 physicians and researchers from around the world have participated in our symposia, and the strong interest in our upcoming events shows that this concept remains appealing. We take great pride in this! Since the very beginning, all of our events – whether large or small – have been based on the principle of providing neutral continuing medical education that benefits research, treatment, and ultimately the patient.

We would like to offer our deepest thanks to everyone who has participated, and we look forward to further advancing scientific dialogue as we continue to advocate for more knowledge sharing and therapeutic progress! Allow us to welcome you to the Falk Foundation symposia – now and for many years to come!

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