Communication and System Relevance in Liver Damage and Regeneration

January 21 – 22, 2016
Heinrich-Heine University
Düsseldorf, Germany

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

Dear colleagues,

I would like to welcome you to the GASL workshop entitled “Communication and System Relevance in Liver Damage and Regeneration”.

Despite the recent tremendous advances in the treatment of HCV infection, therapy of chronic liver diseases and cirrhosis still aims at the associated complications. The course of liver damage and regeneration is not only dependent on intrahepatic signaling pathways but is also influenced by other organs, such as the intestine, the spleen, the immune system, etc. (the “system”). Conversely, liver damage affects other organs such as the brain, the kidney, the intestine as well as the immune system. Therefore, this workshop focuses on the communication of the liver with other organs as well as on the intercellular and intracellular communication within the liver during damage and regeneration. During the workshop internationally renowned experts will provide insights into the signals that regulate the switch between liver regeneration and liver damage and fibrosis development as well as on the system relevance of these processes. There will be an accompanying poster session on both days. The workshop will be followed by the annual meeting of the GASL, to which I also would like to invite you.

Together with the scientific organizers I look forward to welcome you in Düsseldorf.

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Coordinator of the collaborative Research Center (SFB) 974 and
Clinical Research Group (KFO) 217
Workshop

Communication and System Relevance in Liver Damage and Regeneration

January 21 – 22, 2016
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Düsseldorf, Germany

The 32nd Annual Meeting of the German Association for the Study of the Liver will follow the Workshop:
January 22, 12.30 h to January 23, 14.30 h

Scientific Organization:
D. Häussinger, Düsseldorf (Germany)
J. G. Bode, Düsseldorf (Germany)
V. Keitel, Düsseldorf (Germany)
P. A. Lang, Düsseldorf (Germany)

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Official Language:
English

Posters:
A poster session will take place.
For details see page 8
Thursday, January 21, 2016

12.00 Welcome lunch and poster session
13.20 Welcome

Session I
System relevance in liver damage

Chair: D. Häussinger, Düsseldorf; K. Pfeffer, Düsseldorf

13.30 Role of the liver for systemic immunity
P. A. Knolle, Munich

13.55 Balancing viral replication in spleen and liver determines the outcome of systemic virus infection
K. S. Lang, Essen

14.20 Chemokine signaling in liver injury
F. Tacke, Aachen

14.45 Bile acid gut-liver axis and hepatocellular carcinoma
A. Moschetta, Bari

15.10 Pathomechanisms of hepatic encephalopathy
D. Häussinger, Düsseldorf

15.35 Coffee break with poster session

Session II
Communication and signaling in liver damage and regeneration

Chair: U. Beuers, Amsterdam; V. Keitel-Anselmino, Düsseldorf

16.10 Molecular mechanism of hepatic cell fate decisions in liver disease
S. J. Forbes, Edinburgh

16.35 Beyond fibrosis: Stellate cells as liver stem cells
C. Kordes, Düsseldorf

17.00 Vascular adhesion protein-1: An adhesion molecule and enzyme that promotes liver inflammation and drives hepatic fibrosis
D. H. Adams, Birmingham

17.25 Hippo signaling: An emerging pathway in liver growth, injury and repair
D. Yilmalamai, Boston

17.50 The nuclear xenobiotic receptor CAR in hepatocyte proliferation and tumorigenesis
D. D. Moore, Houston
Friday, January 22, 2016

Session III
Contribution of different liver cell populations for liver damage and regeneration

Chair: J. G. Bode, Düsseldorf; A. W. Lohse, Hamburg

9.00  Liver fibrosis: Role of hepatic stellate cells  R. F. Schwabe, New York

9.25  Molecular mechanisms underlying the contribution of liver sinusoidal endothelial cells to liver growth and regeneration  E. Lammert, Düsseldorf

9.50  Angiocrine signals from liver sinusoidal endothelial cells as switch between liver damage and regeneration  S. Rafii, New York

10.15  Coffee break and poster session

Session IV
Stem cells in liver regeneration

Chair: F. Lammert, Homburg; P. A. Lang, Düsseldorf

10.50  Signaling pathways and gene regulatory networks in hepatic cell differentiation  F. Lemaigre, Brussels

11.15  Generation of functional human liver from pluripotent stem cell  H. Taniguchi, Yokohama

11.40  The utility of human iPS cells for studying hepatogenesis and treatment of Crigler-Najjar syndrome type 1  J. A. Adjaye, Düsseldorf

12.05  Essential roles of FGF receptor and integrin signaling in liver regeneration  S. Werner, Zurich

12.30  Farewell lunch

13.30  Opening of the Annual Meeting of the GASL
Poster Session

Posters will be exhibited on January 21–22, 2016, at the Heinrich-Heine University (Germany). The authors will be in attendance during coffee and lunch breaks on both days.

1. Mitochondrial DNA damage analysis in hepatocellular carcinoma progression by ultra-deep sequencing of the entire mitochondrial genome

2. Tauroursodeoxycholic acid activates the ubiquitin-proteasome system in hepatitis B transgenic cells
   K.M. Baier, Y. Churin, F. Schneider, A. Tschuschner, M. Roderfeld, E. Roeb (Gießen, DE)

3. Role of new pathways in liver regeneration after acute and chronic liver damage
   K. Behnke, P. Lang (Düsseldorf, DE)

4. Alpha5beta1 integrins are receptors for bile acids with a (nor-) ursodeoxycholane scaffold
   M. Bonus, A. Sommerfeld, D. Häussinger, H. Gohlke (Düsseldorf, DE)

5. Ad5-CMV-CCN gene transfer in primary liver cells induce endoplasmic reticulum stress-related cellular apoptosis

6. Differential modulation of vesicular and non-vesicular associated microRNAs isolated from sera of partially heptatectomized rats
   M. Castoldi, C. Kordes, I. Sawitza, D. Häussinger (Düsseldorf, DE)

7. In 374 unrelated patients with suspected intrahepatic cholestasis, FIC1, BSEP, and MDR3 sequencing revealed 135 different genetic variants
   C. Dröge, S. Kluge, D. Häussinger, R. Kubitz, V. Keitel (Düsseldorf, Moers, DE)

8. MAPKAP kinases 2 and 3 control the initiation as well as the resolution of the inflammatory response of macrophages
   C. Ehlting, M. Gaestel, D. Häussinger, J.G. Bode (Düsseldorf, Hannover, DE)

9. Analysis of different histone deacetylase isoforms in hepatocellular carcinoma and hepatic stellate cells
   K. Freese, M. Müller, C. Hellerbrand (Regensburg, DE)

10. Determining the molecular consequences of clinically relevant glutamine synthetase mutations
    B. Frieg, B. Görg, N. Homeyer, V. Keitel, D. Häussinger, H. Gohlke (Düsseldorf, DE)

11. Mutational mapping of the transmembrane binding site of the G-protein coupled receptor TGR5 and binding mode prediction of TGR5 agonists
    C.G.W. Gertzen, L. Spomer, S.H.J. Smits, D. Häussinger, V. Keitel, H. Gohlke (Düsseldorf, DE)
12. Evidence for mesenchymal stem cells in liver regeneration  
S. Götze, C. Kordes, I. Sawitza, L. Adolph, D. Häussinger (Düsseldorf, DE)
13. Modelling of human non-alcoholic fatty liver disease with hepatocyte-like cells derived from pluripotent stem cells  
14. Ammonia inhibits LPS-induced inflammation in cocultured astrocytes and microglia  
K. Groos-Sahar, U. Albrecht, A. Shafigullina, B. Görg, D. Häussinger (Düsseldorf, DE)
15. Therapeutic effects from modulation of the cannabinoid receptor 1 signaling  
N. Helmrich, Y. Churin, A. Tschuschner, M. Roderfeld, E. Roeb (Gießen, DE)
16. Interplay of insulin, cytokines and prostaglandin E2 in the development of hepatic insulin resistance and NAFLD  
J. Henkel, G.P. Püschel (Nuthetal, DE)
17. Development of a new modified western diet to induce NASH with obesity and insulin resistance in mice  
J. Henkel, D. Coleman, K. Jöhrens, M. Kuna, I. Grüner, G.P. Püschel (Nuthetal, Berlin, DE)
18. Ammonia induces oxidative stress through NADPH oxidase 4 in cultured rat astrocytes  
A. Karababa, A. Shafigullina, B. Görg, D. Häussinger (Düsseldorf, DE)
19. Effects of lactic acid on primary hepatocytes in vitro  
A. Koch, B. Ott-Rötzer, M. Müller, C. Hellerbrand (Regensburg, DE)
20. Bile acids for the generation of artificial liver tissue  
C. Kordes, I. Sawitza, S. Götze, D. Herebian, M. Castoldi, D. Häussinger (Düsseldorf, DE)
21. Common NPC1L1 variants in gallstone diseases: Combined analysis of genetic risk and cholesterol homeostasis  
M. Krawczyk, D. Lütjohann, M. Acalovschi, F. Lammert (Homburg, Bonn, DE; Warsaw, PL; Cluj-Napoca, RO)
22. Anti-fibrogenic effects of silymarin vary significantly in human hepatic stellate cells from different donors depending on the expression of OATP transporters  
A. Mahli, W.E. Thasler, M. Müller, C. Hellerbrand (Regensburg, Munich, DE)
23. Comparative induction of pluripotency in human umbilical vein endothelial cells and dermal fibroblasts and further differentiation into hepatocytes  
P. Matz, W. Wruck, J. Adjaye (Düsseldorf, Berlin, DE)
24. A disintegrin and metalloprotease 10 (ADAM10) is a central regulator of murine liver tissue homeostasis  
M. Müller, S. Wetzel, J. Köhn-Gaone, K. Chalupsky, R. Lüllmann-Rauch, R. Barikbin, B. Wöhner, G. Tiergs, S. Rose-John, R. Sedlacek, J.E.E. Tirtitz-Parker, P. Saftig, D. Schmidt-Arras (Kiel, Hamburg, DE; Bentley, Fremantle, AU; Prague, CZ)
25. Ammonia-induced miRNA expression changes in cultured rat astrocytes

26. The liver-specific microRNA-122 modulates hepatic response to infection and
inflammation by antagonizing YY1, FoxP3, Nfr1 and E2F4 molecular networks
M. Paluschinski, D. Häussinger, M. Castoldi (Düsseldorf, DE)

27. Role of tumor necrosis factor in the pathogenesis of hepatic encephalopathy
V. Pozdeev, P. Lang (Düsseldorf, DE)

28. Loss of the extracellular matrix molecules tenasin C or periostin results in impaired
regeneration after cerulein-induced pancreatitis
I. Regel, S. Hausmann, S.C. Haneder, N. Wagner, K. Steiger, M. Erkan, J. Kleeff,
I. Esposito (Düsseldorf, Munich, DE; Istanbul, TR)

29. TGR5 deficiency renders mice more susceptible to cholestatic liver injury
M. Reich, C. Klindt, K. Deutschmann, R. Deenen, K. Köhrer, D. Herebian,
E. Mayatepek, D. Häussinger, V. Keitel (Düsseldorf, DE)

30. Role of the signaling protein reelin in chronic liver disease and regeneration
K. Schindler, N. Bajramovic, S. Götz, A. Sommerfeld, G. Kircheis, Y. Thabet,
D. Häussinger, C. Kordes, P. May, H.H. Bock (Düsseldorf, DE)

31. Development and optimization of 3D liver organoids
K. Schirmer, M. Ebert, K. Breitkopf-Heinlein (Mannheim, DE)

32. The synthetic chaperon 4-PBA induces an acute phase response in a mouse
model of protein storage diseases
F. Schneider, Y. Churin, A. Köppel, K.M. Baier, A. Tschuschner, M. Roderfeld,
E. Roeb (Gießen, DE)

33. DNA methylation changes during hepatic stellate cell activation
E.C. Schumacher, S. Götz, C. Kordes, D. Häussinger (Düsseldorf, DE)

34. Identification of atypical cadherin FAT1 as protein interaction partner of MIA2 in
hepatocellular carcinoma
M. Solanki, C. Hellerbrand, A.-K. Bosserhoff (Erlangen, Regensburg, DE)

35. In vivo reprogramming of myofibroblasts into induced hepatocytes during liver
fibrosis
G. Song, M. Pacher, A. Balakrishnan, Q. Yuan, H. Tsay, D. Yang, J. Reetz,
S. Brandes, B.M. Pützer, M. Arauzo-Bravo, D. Steinemann, T. Luedde, R.F. Schwabe,
M.P. Manns, H.R. Schöler, A. Schambach, T. Cantz, M. Ott, A.D. Sharma
(Hannover, Rostock, Aachen, Münster, DE; San Sebastian, Bilbao, ES; New York,
US)

36. Regenerative potential of human pluripotent stem cell-derived MSCs in a Gunn
rat liver injury model
L.-S. Spitzhorn, M. Megges, C. Kordes, I. Sawitza, S. Götz, M.-A. Kawala,
W. Wruck, R. Oreffe, D. Häussinger, J. Adjaye (Düsseldorf, Berlin, DE;
Southampton, GB)
37. TGR5 protein levels are reduced in cholangiocytes of livers from patients with primary sclerosing cholangitis or from mice deficient for Abcb4
   L. Spomer, J. Höhne, J. Hov, T. Karlsen, M. Reich, D. Nierhoff, D. Häussinger, V. Keitel (Düsseldorf, Cologne, DE; Oslo, NO)

38. Characterization of monoclonal BSEP-reactive antibodies associated with antibody-induced BSEP disease (AIBD)
   J. Stindt, T. Tiller, C. Dröge, B. Brackertz, C. Kriegel, J. Klattig, D. Häussinger, R. Kubitz, V. Keitel (Düsseldorf, Munich, DE)

39. Cytokines and microbial endotoxin in experimental model of liver injury
   A. Sydorchuk, R. Sydorchuk, P. Fomin, L. Sydorchuk, I. Sydorchuk, O. Plehutsa (Chernivtsi, UA)

40. The gut-liver axis as systemic expression of relationship between gut microbiota, immunity and vascular dysfunction
   L. Sydorchuk, R. Sydorchuk, I. Sydorchuk, O. Plehutsa, A. Sydorchuk (Chernivtsi, UA)

41. Hepatocyte transfection in small pigs after weaning by hydrodynamic intraportal injection of naked DNA/minicircle vectors
   H.M. Viecelli, A. Schlegel, F. Stoller, V. Rüfenacht, S. Deplazes, R. Bettschart, K. Hurter, P. Schmierer, P. Kron, X. Sidler, B. Thöny, J. Häberle (Zurich, CH)

42. Optimizing safety and long-term efficacy of liver gene therapy with non-integrating naked-DNA minicircle vectors expressing their transgene from a natural promoter
   H.M. Viecelli, A. Schlegel, T. Scherer, G. Allegri, M. Schleef, C.O. Harding, J. Häberle, B. Thöny (Zurich, CH; Bielefeld, DE; Portland, US)

43. Characterization of liver damage and regeneration in C5 receptor-deficient mice
   S.N. Weber, G.R. Burganowa, A. Bohner, F. Lammert, I.V. Martin (Homburg, Aachen, DE)

44. A human hepatic in vitro co-culture system for the analysis of DILI-related signaling

45. MiR-198 regulation in response to oncogenic stress in hepatocellular carcinoma
   X. Yu, H. Eischeid, R. Büttner, M. Odenthal (Cologne, DE)

46. Improved transdifferentiation of adipocyte-derived mesenchymal stem cells into hepatocyte-like cells
   A. Yurtseven, A. Tschida, M. Ruoss, L. Hack, A.K. Nussler (Tübingen, Reutlingen, DE)

47. Dysregulation of Bmi1 promotes malignant transformation of hepatic progenitor cells
   R. Zhang, W. Wu, R. Broering, X. Shi, L. Xu, C. Liu (Essen, DE; Guangzhou, CN)

48. Hepatic expression of oncogenes Bmi1 and DKK1 is upregulated in HBs antigen-transgenic mice in vivo and can be induced by LPS treatment in hepatoma cell line Hepa1–6 in vitro
   R. Zhang, C. Real, W.R. Wu, M.J. Lu, R. Broering (Essen, DE)
List of Speakers, Moderators and Scientific Organizers

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During the Workshop

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Opening Hours:
Thursday, January 21, 2016 10.00 – 18.00 h
Friday, January 22, 2016 8.00 – 12.30 h

Admission to Scientific Events

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

Hotel Accommodation

Tourist Information Office Düsseldorf
Telephone: +49 211 17 202-844
http://www.duesseldorf-tourismus.de/en/accommodation/

Airport

Düsseldorf Airport : http://www.dus.com/en
(approx. 15 km / 25 min. from Workshop venue)

Cologne/Bonn Airport : http://www.koeln-bonn-airport.de
(approx. 50 km / 45 min. from Workshop venue)

The 32nd Annual Meeting of the German Association for the Study of the Liver will take place immediately following the Workshop (January 22 and 23, 2016).
Workshop

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