

Prof. Dr. Dursun Gündüz, Chefarzt Kardiologie und Angiologie

- Studium der Humanmedizin an der Justus-Liebig Universität Gießen
- Promotion 2003 zum Doktor der Medizin. Thema „Antagonismus von ATP und Thrombin bei der Kontrolle der endothelialen Barrierenfunktion“, Note: summa cum laude.
- Gewinner des Young Investigator Awards 2002, Stuttgart zum Thema: „Extrazelluläres ATP antagonisiert die Wirkung von Thrombin auf den kontraktilem Apparat und Makromolekülpermeabilität endothelialer Zellschichten“
- Fachärztliche Weiterbildung an der Justus-Liebig Universität Gießen
- 2010 Facharzt für Innere Medizin, Facharzt für Innere Medizin und Angiologie und 2011 Facharzt für Innere Medizin und Kardiologie
- Zusatzbezeichnung „Notfallmedizin“, interventionelle Kardiologie (DGK) und interventionelle Angiologie (DGK)
- 2010 Oberarzt Kardiologie und 2012 Leiter der Angiologie, Medizinische Klinik I der Justus-Liebig Universität Gießen
- 2012 bis 2016 Lehrbeauftragter der Medizinischen Klinik I, Kardiologie/Angiologie, der Justus-Liebig Universität Gießen
- 2014 Habilitation und Ernennung zum Privatdozenten an der Medizinischen Fakultät der Justus Liebig Universität
- 10/2016 Leiter Kardiologie und Angiologie am Diakonie Klinikum Jung-Stilling, Siegen
- 02/2017 Verleihung der „Außerplanmäßigen Professur“, Medizinische Fakultät der Justus Liebig-Universität, Gießen
- seit 01/2022 Chefarzt Kardiologie und Angiologie am Diakonie Klinikum Jung-Stilling, Siegen

Publikationsverzeichnis von Prof. Dr. D. Gündüz

Originalarbeiten

1. ATP reduces macromolecule permeability of endothelial monolayers despite increasing

[Ca²⁺]_i. T. Noll, H. Hölschermann, K. Koprek, **D. Gündüz**, W. Haberbosch, H. Tillmanns and H. M. Piper. *Am J Physiol* (1999) vol. 276 (6 Pt 2) pp. H1892-901.

2. ATP antagonism of thrombin-induced endothelial barrier permeability.

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3. Opposite effect of cAMP signaling in endothelial barriers of different origin.

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4. MEK/MAPK as a signaling element in ATP control of endothelial myosin light chain.

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5. Accumulation of extracellular ATP protects against acute reperfusion injury in rat heart endothelial cells.

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6. Extracellular ATP induces assembly and activation of the myosin light chain phosphatase complex in endothelial cells.

F. V. Härtel, C. W. Rodewald, M. Aslam, **D. Gündüz**, L. Hafer, J. Neumann, H.M. Piper, T. Noll. *Cardiovasc Res* (2007) vol. 74 (3) pp. 487-96.

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8. Transient hypoxia induces ERK-dependent anti-apoptotic cell survival in endothelial cells. Härtel FV, Holl M, Arshad M, Aslam M, **Gündüz D**, Weyand M, Micoogullari M, Abdallah Y, Piper HM, Noll T. Am J Physiol Cell Physiol. 2010 Jun; 298(6): C1501-9. Epub 2010 Mar 3.

9. cAMP/PKA antagonizes thrombin-induced inactivation of endothelial myosin light chain phosphatase: role of CPI-17.

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10. Insulin stabilizes microvascular endothelial barrier function via phosphatidylinositol 3-kinase/Akt-mediated Rac1 activation.

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11. GRACE risk score as predictor of in-hospital mortality in patients with chest pain.

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12. Fibrinogen Promotes Early Atherosclerotic Changes of the Carotid Artery in Young, Healthy Adults.

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13. Bauhinia bauhinioides cruzipain inhibitor reduces endothelial proliferation and induces an increase of the intracellular Ca²⁺ concentration.

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Guenduez D, Oliva ML, Erdogan A. J Physiol Biochem. 2010 Dec; 66(4): 283-90.

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15. Intermedin induces loss of coronary microvascular endothelial barrier via derangement of actin cytoskeleton: role of RhoA and Rac1. Aslam M, **Gündüz D**, Schuler D, Li L, Sharifpanah F, Sedding D, Piper HM, Noll T. Cardiovasc Res. 2011 Nov 1; 92(2): 276-86.

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Aslam M, Pfeil U, **Gündüz D**, Rafiq A, Kummer W, Piper HM, Noll T. Br J Pharmacol. 2012 Jan; 165(1): 208-22.

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19. Extracellular ATP attenuates ischemia-induced caspase-3 cleavage in human endothelial cells.

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20. Hypoxia reoxygenation-induced endothelial barrier failure: Role of RhoA, Rac1, and MLCK. Aslam M, Schluter KD, Rohrbach S, Rafiq A, Piper HM, Thomas Noll, and **Guenduez D. J.** *Physiol.*, 2012 Dec 10

21. Role of the Phosphatase PTEN in Early Vascular Remodeling.

Daniel G. Sedding; Rebecca Widmer-Teske; Andreas Müller; Philipp Stieger; Jan-Marcus Daniel; **Dursun Gündüz**; Soni Pullamsetti; Holger Nef; Helge Moellmann; Christian Troidl; C. Hamm and Rüdiger Braun-Dullaeus. *PLOS ONE*, 2013 vol 8(3)pp.e5545

22. Nucleoside triphosphate inhibit ADP, collagen, and epinephrin-induced platelet aggregation: role of P2Y1 and P2Y12 receptors.

Aslam M, Sedding D, Koshty A, Santoso S, Schulz R, Hamm C, **Gündüz D.** *Thromb Res.* 2013 Nov;132(5):548-57.

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Feustel A, Hahn A, Schneider C, Sieweke N, Franzen W, **Gündüz D**, Rolfs A, Tanislav C. *PLoS One.* 2014 Mar 13;9(3):e91757.

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D. Gündüz, Ch. Tanislav, Ch. Liebetrau, AK Giese, S. Eichler, N. Sieweke, M. Speht, T. Bauer, Ch. Hamm, A. Rolfs. *PlosOne*, 2016 vol. 11 (6) pp. E0157640.

28. Effect of ticagrelor on endothelial signalling and barrier function.

D. Gündüz, C. Tanislav, KD Schluter, C. Hamm, R. Schulz, M. Aslam. *Thrombosis and Haemostasis*, 2016 Dec 1.

29. Uridine triphosphate thio-analogues inhibit platelet P2Y₁₂ receptors and aggregation.

Dursun Gündüz, Christian Tanislav, Daniel Sedding, Mariana Parahuleva, Sentot Santoso, Christian Troidl, Christian Hamm, Muhammad Aslam. (*International Journal of Molecular Sciences*, accepted 23.01.2017)

30. cAMP/Epac activates PI3K/Akt and MEK/ERK signalling in endothelial cells: Role in endothelial barrier stabilisation and survival." **Dursun Gündüz**, Muhammad Anas, Susanne Rohrbach, Christian Hamm, and Muhammad Aslam (Under Review)

31. Uridine triphosphate thio analogues as inhibitors of platelet aggregation: docking based homology modeling.

D. Gündüz, SA Halim, C. Tanislav, S. Santoso, C. Hamm, M. Aslam. Drug Design, Development and Therapy, submitted.

32. Role of PI3K/Akt and MEK/ERK signalling in cAMP/Epac-mediated endothelial cell barrier stabilisation and proliferation.

D. Gündüz, P. Bauer, A. Koshty, C. Hamm, S. Rohrbach, M. Aslam. Vascular Pharmacology, submitted.

33. Simultaneous isolation of high quality cardiomyocytes, endothelial cells, and fibroblasts from adult rat heart.

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34. Targeting of Extracellular RNA Reduces Edema Formation and Infarct Size and Improves Survival After Myokardial Infarction in Mice

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Reviews

1. MicroRNAs as modulators of endothelial differentiation of stem cells. M. Aslam and **D. Gündüz**. JBiSE 2015

Buchbeitrag

1. Stem cells – from drug to drug discovery.

Micro-RNA as modulators of endothelial differentiation of stem cells – role in vascular regenerative medicine.

D. Gündüz and M. Aslam

Case Reports

1. Ultrasound guided percutaneous thrombin injection in a radial artery pseudoaneurysm following percutaneous coronary intervention.

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2. Diagnosing moyamoya syndrome using ultrasound – a case report.

T. Brau, M. Juennemann, D. Gündüz, S. Schmelsdorf, F. Roessler, Ch. Tanislav. BMC Neurol. 2015 Dec 22;15:263. doi: 10.1186/s12883-015-0518-7.

3. Carpal tunnel syndrome following transradial coronary intervention.

Bauer P, Tanislav C, Koshty A, Hamm CW, Gündüz D. Clin Res Cardiol. 2016 Apr 21.

4. Coronary steal syndrome after left internal mammary bypass in a patient with undiagnosed Takayasu arteritis.

Bauer P, Astrid Kerstin Most, Hamm CW, Gündüz D. Clin Res Cardiol, accepted 01/2017.

Ausschnitt publizierter Abstracts/Vorträge

1. M Aslam, CW hamm, D. Guenduez. Exogenous Nitric Oxide promotes maturation of endothelial adherens junctions and protects against thrombin-induced endothelial barrier failure. Oral presentation at the annual meeting of European Society of Cardiology (2018) in Barcelona.

2. N. Sevinc, S. Mahmood, C. Troidl, R. Schulz, B. Schieffer, C. Tanislav, **D. Gündüz**, C. W. Hamm, M. Aslam (Gießen, Bad Nauheim, Marburg). Effects of interferon gamma on endothelial barrier function: Differential role of classical and non-classical pathways. Oral presentation at the annual meeting of German Society of Cardiology (2018) in Mannheim
3. **D. Gündüz**, C. Troidl, S. Rohrbach, C. Hamm, M. Aslam Prenylation of GTPases and endothelial barrier function; some novel aspects. Poster presentation at the annual meeting of German Society of Physiology (2017) in Greifswald.
4. M. Aslam, M. L. Barcena de Arellano, C. Liebetrau, **D. Gündüz**, C. W. Hamm, Y. Ladilov Effects of estradiol and oestrogen receptor activation on endothelial cells in vitro. Poster presentation at the annual meeting of German Society of Physiology (2017) in Greifswald.
5. **D. Gündüz**, C. Troidl, H. Nef, C. Liebetrau, S. Rohrbach, C. W. Hamm, M. Aslam. Farnesyl transferase inhibitors protect endothelial barrier function against inflammation-induced endothelial hyperpermeability. Oral presentation at the annual meeting of German Society of Cardiology (2017) in Mannheim.
6. **D. Gündüz**, C. Troidl, H. Nef, C. Liebetrau, S. Rohrbach, C. W. Hamm, M. Aslam. Stimulation of Epac activates PI3K/Akt and MEK/ERK signalling in endothelial cells: Role in endothelial barrier stabilisation and survival. Poster presentation at the annual meeting of German Society of Cardiology (2017) in Mannheim.
7. M. Aslam, C. Hamm, **D. Gündüz**. Uridin triphosphate (UTP) and its analogues are potent P2Y12 receptor antagonists: Effect on platelet aggregation and endothelial barrier function. Poster presentation at the annual meeting of German Society of Microcirculation (2016) in Frankfurt.

8. M. Aslam, C. Hamm, **D. Gündüz**. cAMP/PKA modulates VEGFR2 signalling and angiogenesis via inhibition of RhoA/Rock-mediated antagonism. Poster presentation at the annual meeting of German Society of Microcirculation (2016) in Frankfurt.

9. M. Aslam, R. Schulz, C. Hamm, **D. Gündüz**. Effect of ticagrelor on endothelial calcium signalling and barrier function in vitro. Poster presentation at the annual meeting of European Society of Cardiology (2016) in Rome.

10. M. Aslam, **D. Gündüz**. RhoA/Rock signalling as an important target for cAMP/PKA-mediated angiogenesis. Poster presentation at the annual meeting of The Physiological Society (2016) in Dublin.

11. M. Aslam, **D. Gündüz**. Role of PI3K/Akt and MEK/ERK signalling in cAMP/Epac mediated endothelial cell barrier stabilisation and proliferation. Poster presentation at the annual meeting of The Physiological Society (2016) in Dublin.

12. M. Aslam, R. Schulz, C. Hamm, **D. Gündüz**. Uridine triphosphate thio analogues as P2Y₁₂ receptor antagonists and inhibitors of platelet aggregation. Poster presentation at the annual meeting of German Society of Physiology (2016) in Lübeck.

13. M. Aslam, S. Rohrbach, R. Schulz, C. Hamm, **D. Gündüz**. Ingenol pre-conditioning protects against inflammation- and hypoxia/reoxygenation-induced loss of endothelial barrier function. Poster presentation at the annual meeting of German Society of Physiology (2016) in Lübeck.

14. M. Aslam, **D. Gündüz**. Low dose, long-term clarithromycin therapy ameliorates inflammatory mediators-induced loss of endothelial barrier function. Poster presentation at the annual meeting of German Society of Physiology (2016) in Lübeck.

15. M. Aslam, C. W. Hamm, S. Rohrbach, R. Schulz, **D. Gündüz**. Ingenol pre-conditioning protects against ischemia/reperfusion and inflammation-induced loss of endothelial barrier function. Poster presentation at the annual meeting of German Society of Cardiology (2016) in Mannheim.
16. M. Aslam, **D. Gündüz**. Opposing effects of camp/pka and camp/epac signalling on in vitro angiogenesis: role of rho gtpases. Poster presentation at the annual meeting of European Vascular Biology and European Society of Microcirculation (2015) in Pisa.
17. M. Aslam, C. Hamm, **D. Guenduez**. cAMP controls the restoration of endothelial barrier function after thrombin-induced loss of endothelial barrier. Oral presentation at the annual meeting of German Society of Microcirculation and Swiss society for Microcirculation (2014) in Muenster.
18. M. Aslam, C. Troidl, H. Nef, C. Hamm, **D. Guenduez**. Uridin triphosphate (UTP) and its analogue are potent antagonists for platelet and endothelial P2Y12 receptors: effect on platelet aggregation and endothelial barrier. Oral presentation European Heart Journal (2014) 35 Suppl. 1 (Abstract Supplement) 1059 ESC congress Barcelona
19. M. Aslam, H. Nef, C. Troidl, R. Schulz, C. Hamm, **D. Gündüz**. cAMP-mediated Rac1 activation regulates the re-establishment of endothelial adherens junctions and barrier restoration during inflammation. Poster presentation Cardiovascular Res (2014) 103(suppl 1):S32 (FCVB meeting, 2014, Barcelona, Spain)
20. M. Aslam, H. Nef, C. Troidl, C. Hamm, **D. Gündüz**. Opposing effects of cAMP/PKA and cAMP/Epac signalling on in vitro angiogenesis: role of Rho GTPases. Poster presentation Cardiovascular Res (2014) 103(suppl 1):S34 (FCVB meeting, 2014, Barcelona, Spain)

21. Aslam M, Hamm C, and **D. Gündüz**. Uridin triphosphate (UTP) and its analogue are potent antagonists for platelet and endothelial P2Y₁₂ receptors: Effect on platelet aggregation and endothelial barrier. *Circulation; Suppl.* 2013 (AHA-Scientific Session, Nov. 2013, Dallas, Tx, USA).
22. Rebecca Teske, Nicolaus C Erichsen, Christian Troidl, Sebastian Szardien, Sandra Voss, Oliver Dörr, Markus Willmer, **Dursun Gündüz**, Muhammad Aslam, Martin Hardt, Daniel G Sedding, Germany; Helge Möllmann, Holger Nef, Christian W Hamm. Microvesicle-mediated Transfer of miRNAs between macrophages and vascular cells. *Circulation; Suppl.* 2013 (AHA-Scientific Session, Nov. 2013, Dallas, Tx, USA).
23. M. Aslam, S. Rohrbach, R. Schulz, C. Hamm, **D. Gündüz**. cAMP signalling in endothelial cells: Differential effects on angiogenesis via PKA and Epac signaling. Presented as poster at IUPS 2013 Birmingham, UK.
24. M. Aslam, S. Rohrbach, R. Schulz, C. Hamm, **D. Gündüz**. cAMP signalling in endothelial cells: differential regulation of endothelial function via PKA and Epac signalling. Oral presentation at the Annual Meeting of German physiological Society March 2013, Heidelberg
25. M. Aslam, S. Rohrbach, D. Sedding, C. Hamm, T. Noll, **D. Guenduez**. cAMP/Epac signalling stabilises endothelial barrier via PI3K/Akt-independent and promotes angiogenesis via PI3K/MEK-dependent manner. *European Heart Journal* (2012) 33 (Abstract Supplement), 357 ESC congress Munich
26. M. Aslam, S. Rohrbach, K-D. Schluter, D. Sedding, C. Hamm, T. Noll, **D. Guenduez**. Hypoxia reoxygenation-induced endothelial barrier failure: Role of RhoA, Rac1, and MLCK. *European Heart Journal* (2012) 33 (Abstract Supplement), 751 ESC congress Munich

27. M. Aslam, S. Rohrbach, K.-D. Schlueter, H.M. Piper, T. Noll, **D. Guenduez (2012)**
The intact RhoA/Rock and PKC signaling is required for recovery of reperfusion-induced endothelial barrier failure. *Cardiovascular Res* (2012) 32 :1008 (FCVB meeting, 2012, London, UK)
28. M. Aslam, I. Hussain, M. Arshad, W. Iraqi, D. Sedding, T. Noll, R. Schulz, H.M. Piper, **D. Guenduez (2011)** Insulin induces restoration of endothelial barrier function via Rac1-mediated rearrangement of actin cytoskeleton and VE-cadherin. *European Heart Journal* (2011) 32 :1008 (ESC meeting, 011, Paris, France)
29. Aslam M, Johannes Thom, Imran Hussain, Daniel Sedding, Muhammad Arshad, Frauke V Härtel, Thomas Noll, Hans Michael Piper, and **Dursun Gündüz (2010)**. Insulin Induces the Release of Endothelial Barrier Stabilizing Factor From Platelets by a Nitric Oxide G-Kinase-Dependent Pathway. *Circulation*; 122: A20870 (AHA-Scientific Session, Nov. 2010, Chicago, IL, USA)
30. Frauke V Härtel, Assad M Riaz, Muhammad Aslam, **Dursun Gündüz**, and Thomas Noll (2010) Activation of AMP-activated Protein Kinase Displays a Novel Strategy Against Reperfusion-Induced Barrier Failure in Endothelial Cells. *Circulation*; 122: A19391 (AHA-Scientific Session, Nov. 2010, Chicago, IL, USA)
31. Aslam M, Härtel FV, **Gündüz D**, Piper HM, Noll T (2010) cAMP antagonizes thrombin-induced inactivation of endothelial myosin light chain phosphatase and hyperpermeability: Role of PKA and Epac. *Acta Physiologica* 198:Supp.677:116 (Joint meeting of German and Scandinavian Societies of Physiology March 2010, Copenhagen, Denmark).
32. Aslam M, Thom J, Hussain I, Härtel FV, Piper, HM, Noll T, Sedding D, Tillmanns H, **Gündüz D** (2009) Insulin stabilizes microvascular endothelial barrier function via PI3K-Akt-Rac1 pathway. *Circulation*; 120:S1075 (AHA-Scientific Session, Nov. 2009, Orlando, FL, USA)

33. Aslam M, Härtel FV, **Gündüz D**, Piper, HM, Noll T (2008) Intermedin induces restoration of endothelial barrier function via Rac1-mediated rearrangement of actin cytoskeleton and VE-cadherin. *Circulation*; 116:II-204 (AHA-Scientific Session, Nov. 2008, New Orleans, LA, USA)
34. Aslam M, Härtel FV, **Gündüz D**, Pfeil U, Hsu SY, Kummer W, Piper, HM, Noll T (2007) Intermedin induces failure of microvascular endothelial barrier via derangement of actin cytoskeleton and dephosphorylation of focal adhesion proteins. *Circulation*; 116:II-204 (American Heart Association-Scientific Session, Nov. 2007, Orlando, FL, USA)
35. Aslam M, Härtel FV, Holl M, **Gündüz D**, Arshad M, Piper HM, Noll T (2006) NO Enhances Endothelial Barrier Function by inactivating the contractile machinery and Stabilizing Cell – Adhesions. *Circulation*; 114(18):II-110 (American Heart Association-Scientific Session, Nov. 2006, Chicago, USA)
36. Aslam M, Härtel FV, **Gündüz D**, Arshad M, Piper HM, Noll T (2006) cAMP stabilisiert die endotheliale Schranke über Aktivierung und Assemblierung der Myosinleichtkettenphosphatase und Hemmung von CPI-17. (72nd Annual Meeting of German Cardiac society, April 2006, Mannheim, Germany)
37. Härtel FV, Aslam M, Rodewald CW, **Gündüz D**, Noll T (2006) NO antagonisiert das Thrombin-induziert endotheliale Schrankenversagen durch Hemmung des kontraktilen Apparates. (72nd Annual Meeting of German Cardiac society, April 2006, Mannheim, Germany)
38. Aslam M, Härtel FV, **Gündüz D**, Holl M, Piper HM, Noll T (2006) CPI-17 is an important target of cAMP/PKA-mediated activation of MLC phosphatase and stabilization of endothelial barrier function. *Acta Physiologica*; 186:S152 (Joint meeting of DPG and FEPS, Munich March 2006)

39. Aslam M, Härtel FV, **Gündüz D**, Arshad M, Noll T (2005) cAMP Stabilizes Endothelial Barrier by Activation and Assembly of the Myosin Light Chain Phosphatase holoenzyme and Inhibition of CPI-17. *Circulation*; 112:II-142 (AHA-Scientific Session Nov. 2005, Dallas USA)
40. Aslam M, Härtel FV, Rodewald CW, **Gündüz D**, Noll T (2005) Nitric Oxide antagonizes Thrombin Induced endothelial Barrier failure by activation of Myosin Light Chain Phosphatase and inhibition of MEK/ERK pathway. *Circulation*; 112:II-30 (AHA-Scientific Session Nov. 2005, Dallas, USA)
41. Härtel FV, Rodewald CW Aslam M, **Gündüz D**, Neumann J, Piper HM, Noll T (2005) Extracellular ATP induces Assembly and Activation of Myosin Light Chain Phosphatase complex in Endothelial Cells. *Circulation*; 112:II-142 (AHA-Scientific Session Nov. 2005, Dallas, USA)
42. **Gündüz D**, Härtel FV, Aslam M, Piper HM, Noll T (2005) Accumulation of extracellular ATP protects against acute endothelial reperfusion injury. *Eur Heart J*; 26:264 (Annual meeting of European Society of Cardiology, Sep. 2005)
43. Aslam M, Härtel FV, **Gündüz D**, Noll T (2005) Stimulation of adenylyl cyclase enhances endothelial barrier property by activation of the myosin light chain phosphatase and inhibition of CPI-17. *J Vas Res*; 42:98-99, (3rd European meeting on vascular Biology and Medicine, Sep. 2005, Hamburg, Germany)
44. Aslam M, Härtel FV, **Gündüz D**, Noll T (2005) Stimulation of adenylyl cyclase enhances endothelial barrier property via inactivation of contractile apparatus of the endothelial cells. *J Vasc Res*; 43:27-60, (Annual Meeting of the Society for Microcirculation and Vascular Biology, Sep. 2005, Rostock, Germany)
45. Härtel FV, Aslam M, Rodewald CW, **Gündüz D**, Haffer L, Neuman J, Piper HM, Noll T

(2005) Extrazelluläres ATP stabilisiert die endotheliale Schrankenfunktion über Aktivierung des Myosinleichtketten-Phosphatase-Komplexes. (71st Annual Meeting of German Cardiac society, April 2005, Mannheim, Germany)

46. Härtel FV, Aslam M, Rodewald CW, **Gündüz D**, Haffer L, Neumann J, Piper HM, Noll T (2005) Extracellular ATP Stabilizes endothelial barrier via Activation of Myosin Light Chain Phosphatase complex. Eur J Phys; 449: S59 (84th Annual Meeting of Deutsche Physiologische Gesellschaft)