

MEET THE GUEST EDITORS

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Christian Buchholz studied microbiology at the University of Munich. He obtained his Ph.D. at the Max-Planck-Institute for Biochemistry in 1993, where he worked on the molecular mechanism of viral RNA-dependent RNA polymerases under supervision of Prof. Wolfgang Neubert. He then became a postdoctoral fellow in the Institute for Molecular Biology in Zurich where he elucidated the role of the measles virus receptor in membrane fusion in Prof. Roberto Cattaneo's laboratory. As an EMBO fellow he joined the Centre for Protein Engineering in Cambridge (UK) and established the retrovirus based screening and display library technology together with Prof. Stephen J. Russell. Since 1999 he is head of the Section "Viral Gene Transfer Medicinal Products" at the Paul-Ehrlich-Institut, and later on became Associate Professor for Biochemistry at the University of Frankfurt.

SELECTED PUBLICATIONS

- [1] **Buchholz, C.J.**, Peng, K.W., Morling, F.J., Zhang, J., Cosset, F.L., and Russell, S.J. (1998) *In vivo* selection of protease cleavage sites from retrovirus display libraries. *Nature Biotechnology* 16: 951-954.
- [2] Schneider, R.M., Medvedovska, Y., Hartl, I., Voelker, B., Chadwick, M., Russell, S.J., Cichutek, K., and **Buchholz, C.J.** (2003) Directed evolution of retroviruses activatable by tumour associated matrix metalloproteases. *Gene Therapy* 10: 1370-1380.
- [3] Merten, C.A., Stitz, J., Braun, G., Poeschla, E.M., Cichutek, K. and **Buchholz, C.J.** (2005) Directed evolution of retrovirus envelope protein cytoplasmic tails guided by functional incorporation into lentivirus particles. *Journal of Virology* 79: 834-840.
- [4] Hartl, I., Schneider, R.M., Sun, Y., Medvedovska, J., Chadwick, M.P., Russell, S.J., Cichutek, K. and **Buchholz, C.J.** (2005) Library-based selection of retroviruses selectively spreading through matrix metalloprotease-positive cells. *Gene Therapy* 12: 918-926.
- [5] Urban, J.H., Schneider, R.M., Compte, M., Finger, C., Cichutek, K., Álvarez-Vallina, L., and **Buchholz, C.J.** (2005) Selection of functional human antibodies from retroviral display libraries. *Nucleic Acids Research* 33: e35.
- [6] Merten, C.A., Stitz, J., Braun, G., Medvedovska, J., Cichutek, K., **Buchholz, C.J.** (2006) Fusoselect: cell-cell fusion activity engineered by directed evolution of a retroviral glycoprotein. *Nucleic Acids Research* 34: e41.

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Hildegard Büning studied biology at the Universities of Münster and Munich. She received her Ph.D. at the Institute for Biochemistry of the University of Munich in 1997, where she worked on protein-DNA interaction under supervision of Prof. Haralabos Zorbas and Prof. Ernst-Ludwig Winnacker. She then worked as a postdoctoral fellow and later as Principal Investigator at the Gene Center in Munich on AAV vector development in the laboratory of Prof. Michael Hallek. In 2004 she started her own research group at the Clinic I for Internal Medicine of the University of Cologne. One year later, she became a member of the Center for Molecular Medicine Cologne, and is currently the Scientific Secretary of the German Society of Gene Therapy. Her work focuses on AAV vector targeting and on the study of AAV biology.

SELECTED PUBLICATIONS

- [1] Nicklin, S.A., **Büning, H.**, Dishart, K.L., de Alwis, M., Girod, A., Hacker, U., Thrasher, A.J., Ali, R.R., Hallek, M. and Baker, A.H. (2001) Efficient and selected AAV2-mediated gene transfer directed to human vascular endothelial cells. *Molecular Therapy* 4, 174-181.
- [2] Seisenberger, G., Ried, M.U., Endress, T., **Büning, H.**, Hallek, M., Bräuchle, C. (2001) Real-time single-molecule imaging of the infection pathway of an adeno-associated virus. *Science*, 294, 1929-1932.
- [3] Perabo, L., **Büning, H.**, Kofler, D.M., Ried, M.U., Girod, A., Wendtner, C.M., Enssle, J., Hallek, M. (2003) *In vitro* selection of viral vectors with modified tropism: the adeno-associated virus display. *Molecular Therapy* 8, 151-157.
- [4] Lux, K., Goerlitz, N., Schlemminger, S., Perabo, L., Goldnau, D., Endell, J., Leike, K., Kofler, D.M., Finke, S., Hallek, M., **Büning, H.** (2005) Green Fluorescent protein-tagged adeno-associated virus particles allow the study of cytosolic and nuclear trafficking. *Journal of Virology* 79: 11776-11787.
- [5] Perabo, L., Endell, J., King S., Lux, K., Goldnau, D., Hallek, M., **Büning, H.** (2006) Combinatorial engineering of a gene therapy vector: directed evolution of adeno-associated virus. *The Journal of Gene Medicine* 8: 155-162.
- [6] Work, L.M., **Büning, H.**, Hunt, E., Nicklin, S.A., Denby, L., Britton, N., Leike, K., Odenthal, M., Drebber, U., Hallek, M., Baker, A.H. (2006) Vascular bed-targeted *in vivo* gene delivery using tropism-modified adeno-associated viruses. *Molecular Therapy* 13: 683-693.
- [7] Perabo, L., Goldnau, D., White, K., Endell, J., Boucas, J., Humme, S., Work, L.M., Janicki, H., Hallek, M., Baker, A.H., **Büning, H.** (2006) Heparan sulfate proteoglycan binding properties of adeno-associated virus retargeting mutants and consequences for their *in vivo* tropism. *Journal of Virology* 80: 7265-7269.