

Wilhelm W. Just

Since 1994 Prof. of Biochemistry
at the BZH



Biogenesis and Function of Mammalian Peroxisomes

Current Research

Our current interests in peroxisome biogenesis focus on two main aspects:

(i) The function of the peroxisomal membrane proteins Pex11-1 and Pex11-2 and (ii) the involvement of the cytoskeleton particularly the microtubular system. Whereas Pex11-1 might be involved in the ARF-dependent recruitment of the COP I coat onto peroxisomes, Pex11-2 seems to be mediating constrictions of peroxisomal tubules. Although we recently demonstrated specific interaction with and transport along microtubules of peroxisomes, the question still remains whether microtubules participate in peroxisomal biogenesis.

A main function of mammalian peroxisomes is their capacity to synthesize ether lipids e.g. plasmalogens (PM). The isolated defect in PM biosynthesis in man causes the severe disorder of *rhizomelic chondrodysplasia punctata* which is lethal within the first years of life. Our recent studies on phenotypic changes in PM-deficient human skin fibroblasts provided evidence for impairments in the function of caveolae, clathrin-coated pits and intracellular protein and cholesterol transport. The ether lipid-deficient mouse k.o. model which is under construction may facilitate future studies on ether lipid function.

Projects for a Doctoral Thesis

1. Exploration of COP I coat recruitment onto peroxisomes.
2. Functions of Pex3 and Pex16 in peroxisomal biogenesis.
3. Characterization of components involved in peroxisome-microtubule interaction.
4. Characterization of the ether lipid-deficient mouse k.o. model.

Selected Publications

- Paßreiter, M., M. Anton, D. Lay, R. Frank, C. Harter, F. T. Wieland, K. Gorgas, W. W. Just. 1997. Functional role in peroxisome biogenesis of rat liver Pmp26p. **J.Cell Biol.** **141**, 373-383.
- Huber, C. M., R. Saffrich, W. Ansorge, W. W. Just. 1999. Receptor-mediated regulation of peroxisomal motility in CHO and endothelial cells. **EMBO J.** **18**, 5476-5485.
- Pause, B., R. Saffrich, A. Hunziker, W. Ansorge, W. W. Just. 2000. Targeting of the 22 kD integral peroxisomal membrane protein. **FEBS Lett.**, **471**, 23-28.
- Anton, M., M. Passreiter, D. Lay, T.-P.Thai, K. Gorgas, W. W. Just. 2000. ARF- and coatamer-mediated peroxisomal vesiculation. **Cell Biochem. Biophys.** **32**, 27-36.
- Thai, T.-P., C. Rodemer, A. Jauch, A. Hunziker, A. Moser, K. Gorgas, W. W. Just. 2001. Impaired membrane traffic in defective ether lipid biosynthesis. **Hum. Mol. Gen.** **10**, 127-136.

Contact:

Prof. Dr. Wilhelm Just
Universität Heidelberg
BZH
Im Neuenheimer Feld 328
69120 Heidelberg
Tel.: 49 6221 544151
Fax: 49 6221 544366
e-mail: CL4@ix.urz.uni-heidelberg.de
<http://www.rzuser.uni-heidelberg.de/~cl4/just2.html>