

Forschungsverbund Molekulare Medizin (FVMM)

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**Coordination Action on the Aetiology, Pathology and Prediction of Type 1 Diabetes in  
Europe**

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Insulin producing beta cells are highly sensitive towards oxidative and nitrosative stress due to their deficiency of antioxidant enzymes. That may be the reason for selective destruction by oxygen- and nitrogen radicals during pathogenesis of type I diabetes mellitus. We use insulin producing cell lines as well as isolated islet to study expression and activation including signal cascades of NO synthases and peroxiredoxins under normal and diabetic conditions. Additionally, newly discovered proteins interacting with PDX-1 will be characterised with regard to a possible involvement in pathogenesis of diabetes mellitus. Moreover investigations of the regulation of insulin gene expression are an important requirement to develop glucose sensitive insulin producing cells for future gene therapy of diabetic patients.