

# DBMR Research Conference

Langhans Hörsaal Pathologie  
Murtenstrasse 31, 3008 Bern

Date February 4, 2019, 5 pm – 6 pm

Title **Heart Transplantation – from the first human allografts to life-supporting pig-to-baboon xenotransplantation**

Speaker Prof. Dr. med. Dr. h.c. Bruno Reichart, Walter Brendel Centre of Experimental Medicine, Ludwig Maximilian University, Munich, Germany

## **Biosketch**

Prof. Bruno Reichart is a German cardiothoracic surgeon who performed Germany's first successful heart transplant in 1981 as well as its first combined heart-lung transplant in 1983. In 1984, he succeeded Prof. Christiaan Barnard at Groote Schuur Hospital in Cape Town and was appointed president of the International Society for Heart and Lung Transplantation (ISHLT) from 1988 to 1990. He returned to Munich in 1990 as director of the Cardiac Surgery Clinic at the Klinikum Großhadern of the University of Munich (LMU). He has also been active in experimental research in xenotransplantation and from 2011, became a spokesman for the German Transregio Xenotransplantation Consortium TR127. Prof. Bruno Reichart received the Pioneer Award for his life's work in heart surgery from the ISHLT at their 35<sup>th</sup> annual meeting in 2015 in Munich.

## **Abstract**

Heart transplantation is the only cure for patients with terminal cardiac failure, but the supply of allogeneic donor organs falls far short of the clinical need. Xenotransplantation of genetically modified pig hearts has been discussed as a potential alternative. Genetically multi-modified pig hearts that lack galactose- $\alpha$ 1,3-galactose epitopes ( $\alpha$ 1,3-galactosyltransferase knockout) and express a human membrane cofactor protein (CD46) and human thrombomodulin have survived for up to 945 days after heterotopic abdominal transplantation in baboons. This model demonstrated long-term acceptance of discordant xenografts with safe immunosuppression, but did not predict their life-supporting function. Despite 25 years of extensive research, the maximum survival of a baboon after heart replacement with a porcine xenograft was only 57 days and this was achieved only once. In a recent Nature publication, Prof. Reichart and collaborators describe the use of  $\alpha$ 1,3-galactosyltransferase-knockout pig hearts that express human CD46 and thrombomodulin for life-supporting, orthotopic xenotransplantation into baboons. A non-ischemic preservation with continuous perfusion and control of post-transplantation growth was applied. Consistent life-supporting function of xenografted hearts for up to 195 days was achieved, which is a milestone on the way to clinical cardiac xenotransplantation.

Prof. Bruno Reichart has been invited by Prof. Robert Rieben, Cardiovascular Research Group, DBMR, University of Bern.

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## **March 4, 2019**

*"MNC Secretome: from discovery to product science and patient: from ignorance to clinical Trial"*

Next DBMR Research Conference

Prof. Dr. Hendrik J. Ankersmit, MD, Department of Thoracic Surgery, Christian Doppler Laboratory for Cardiac and Thoracic Diagnosis and Regeneration, Medical University of Vienna, Austria

The DBMR Research Conference takes place from 5 pm – 6 pm and will be followed by an apéro.



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