RTG 1830
GERMAN CANADIAN
COMPLEX MEMBRANE PROTEINS
IN CELLULAR DEVELOPMENT AND DISEASE

P2

Dynamics of TRP protein assembly to plasma membrane cation channels (Veit Flockerzi)

Mutations within the TRPV6 channel proteins cause male infertility and a role of TRPC channel proteins in the ontogeny of excitotoxic neurodegeneration, heart failure, focal and segmental glomerulosclerosis can be anticipated. In this proposed IRTG we want to study the dynamics of protein assembly to TRPV6 and TRPC1/TRPC4-plasma membrane cation channels in view of the mechanisms regulating channel activation under physiological and pathological conditions. We have already generated mice by homologous recombination which are heterozygous for a TRPV6-GFP-fusion gene and a TRPV6-mCherry-HAT-SBP-fusion gene, respectively. As soon as homozygous mice are available we want to purify the TRPV6 and associated proteins by a tandem affinity approach making use of these tags and of poly- and monoclonal antibodies for TRPV6, and for the fluorescent protein which we have generated in-house. In a second project we want to identify the sub-domains of TRPC1 responsible for intracellular retention and for interaction with TRPC4, intracellularly localized members of the TRPP subfamily of TRPs, and glucose transporters.