Characteristics of the S100P-IQGAP1 interaction

Annika Heil, Ali Reza Nazmi, Michaela Pöter, Volker Gerke

Institute of Medical Biochemistry, Center for Molecular Biology of Inflammation, University of Muenster, Germany. E-mail: <u>heila@uni-muenster.de</u>; <u>alinazmi@uni-muenster.de</u>

S100P is an EF-hand calcium-binding protein initially identified in placenta that interacts with the cortical actin regulator ezrin. Here we identified the multi-domain protein IQGAP1 as another specific interaction partner of S100P. By association with numerous binding partners IQGAP1 is involved in different cellular activities such as modulation of the actin cytoskeleton, microtubule dynamics, cell-cell-adhesion, gene transcription and signaling pathways. To further investigate the S100P-IQGAP1 interaction and to map the respective binding motives we performed affinity chromatography approaches with mutant forms of the two proteins. Our results indicate that the CHD- and the IQ-domains of IQGAP1 are crucially involved in the interaction that occurs in a direct and calcium-dependent manner. Using a Surface Plasmon Resonance approach the binding affinities of S100P with the respective IQGAP1 domains were calculated. Our analyses also reveal that amino acids 21-25 of S100P are involved in the calcium-dependent binding of IQGAP1. This suggests a novel type of S100-target protein interaction since these typically involve residues at the C-terminus.