

Crystallization of Human Erythrocyte Band 3, the anion exchanger, at the International Space Station "KIBO".

Abstract

Band 3 mediates the Cl^- and HCO_3^- exchange across the red blood cell membrane and plays a pivotal role for delivering oxygen appropriately to metabolically active tissues. For understanding molecular mechanisms, it is essential to know the structure and function relationship. In terrestrial environments, however, nobody could make good quality crystals of Band 3 for the X-ray crystallographic study. In this study, we purified the transmembrane domain of Band 3 from human red blood cells and crystallized the purified Band 3 without the Fab fragment at the International Space Station "KIBO" under microgravity environments.