

Design of multi-functional polymeric biomaterials based on the intermediate water concept
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He worked for TERUMO Co. (Leading Medical Devices Company in Japan) and designed novel biocompatible polymers and commercialized as artificial lung and heart (Approved by FDA and Global market's No.1 share). In 2000 he moved to Hokkaido University and in 2007 he moved to Tohoku University. Stents covered with self-organized polymer films are commercially available in the world clinical market (over 250 original patents). He was a Visiting Scientist, at Dept. of New Materials and Biosystems, Max-Planck-Institute (2008-2009). In 2009 he was awarded a full professorship at Yamagata University. He became a leader of Funding Program for Next Generation World-Leading Researchers (NEXT Program, Japan). Since 2015, he has been at Kyushu University as a full Professor and a leader of JSPS International Joint Research Program. Thus far, he has published over 200 papers in peer reviewed journals (H-index 56), 50 book chapter, 130 others, and has received 29 awards including the Japanese Society for Biomaterials in 2021 for his intermediate water concept based on the role of interfacial water at polymer interphases. The intermediate water content is a good predictor of biological responses to polymers and is used for high throughput biocompatible polymers discovery and design/precision synthesis of multi-functional polymers.

