

Professor Kurisawa's Profile

Motoichi Kurisawa received his Ph.D. degree from the School of Materials Science, Japan Advanced Institute of Science and Technology in 1998. He conducted his postdoctoral experiences in biomaterials at Tokyo Women's Medical University and Kyoto University during 1998 and 2003. He joined Institute of Bioengineering and Nanotechnology (IBN) A*STAR, Singapore in 2003 as a Research Scientist and was subsequently promoted to Team Leader and Principal Research Scientist in 2007. He then joined A*STAR's Institute of Bioengineering and Bioimaging in 2021 as a Senior Principal Investigator. He returned to Japan to join Japan Advanced Institute of Science and Technology as a Professor. Professor Kurisawa is focused on developing green tea-based nanomedicine that exhibits intrinsic anticancer activity and synergizes with various anticancer drugs. For his scientific contribution, he was awarded an outstanding paper award from the Journal of Artificial Organ in 1997 and 2002, Grand Prize, The Crown Prince Creative, Innovative Product and Technical Advancement Award 2015 and First Prize in the ASEAN Category, The Crown Prince Creative, Innovative Product and Technical Advancement Award 2015. Professor Kurisawa also serves on the Editorial Board of Biomedical Materials.

Enhancing Healing Power with Green Tea Biomaterials

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We have designed novel drug delivery systems that provide synergistic therapeutic effects with the drugs carried. We have developed hydrogels and micellar nanocomplexes (MNCs) comprising epigallocatechin-gallate (EGCG) derivatives that have highly augmented therapeutic effects (e.g. antioxidant and anticancer properties) compared to pure EGCG, a major component of green tea. These hydrogels induce apoptosis only in cancer cells, but not in normal cells. The anticancer drug-loaded MNC showed improved tumour selectivity, longer blood-half-life and reduced tumour growth more efficiently than free drug. This MNC represents a unique and effective drug delivery system which takes advantage of the therapeutic effect of the green tea-based carrier.

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