

## Profile of Xiyun Yan

Dr. Xiyun Yan obtained her B.S. degree in 1983, from the Henan Medical College, and then studied cell biology in Professor Shizhang Bei's lab in the Institute of Biophysics, Chinese Academy of Sciences (CAS) until leaving for Germany in 1989. After receiving her medical doctor's degree from Heidelberg University in Germany, she joined the Memorial Sloan-Kettering Institute in New York as a post-doctoral research fellow. In 1997, Dr. Yan returned to China through her selection in the "Hundred Talents Program" by CAS. She has since studied tumor biology, finding novel targets and developing new methods for tumor diagnosis and therapy. Her work has been well recognized and respected internationally through honors such as the National Prize for Natural Science and Atlas Award by Elsevier. In 2015, she was elected as the new president of Asian Biophysics Association and Academician of Chinese Academy of Sciences.

Dr. Yan's scientific contributions in the emerging interdisciplinary field of biomedicine and nanotechnology are as follows:

### Nanozyme: Discovery and application in tumor diagnosis

Dr. Yan's research group observed that iron oxide nanoparticles possessed peroxidase-like activity, which was the first report on intrinsic enzyme-like properties of nano-materials. She introduced the new concept of a nanozyme and was the first to use nano-materials as enzyme mimics to create new methods for tumor diagnosis and Nanozyme-strip for rapid local detection of infectious diseases like Ebola virus disease. This finding changed the general idea that nanoparticles are chemically inert, and opened many new applications for nanoparticles in many important fields, including medicine, agriculture, food production, biotechnology, and environmental protection. Currently, nanozyme is considered as an emerging field that bridges biology and nanotechnology.

### CD146: Discovery and application in tumor immunotherapy

Dr. Yan discovered the adhesion molecule CD146 as a novel



target for tumor angiogenesis, identified the ligands of CD146, and developed therapeutic humanized antibodies for the treatment of liver cancer, pancreatic cancer, and colon cancer. From discovery to preclinical studies, she has published more than 140 scientific papers, and the related patents have been licensed for \$17 million USD. She has continuously focused on translating her findings into industrial applications to improve human health and the environment.

### Selected papers (out of a total of 140):

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