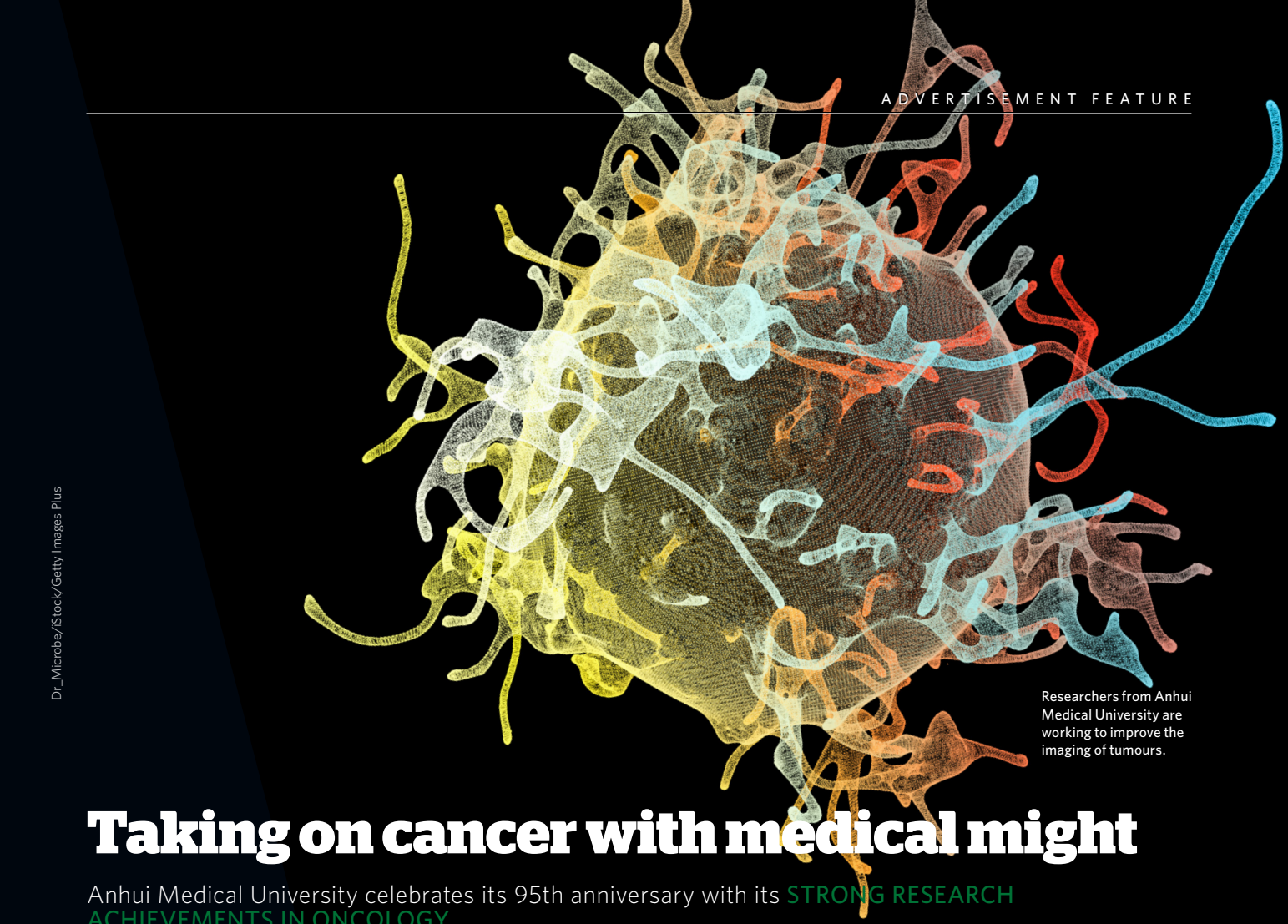

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Researchers from Anhui Medical University are working to improve the imaging of tumours.

Taking on cancer with medical might

Anhui Medical University celebrates its 95th anniversary with its STRONG RESEARCH ACHIEVEMENTS IN ONCOLOGY.

From improving magnetic resonance imaging (MRI) techniques to increasing understanding of liver and prostate cancers, researchers at AHMU are advancing oncology research.

Yongqiang Yu, vice-president and director of medical imaging at AHMU, has been working to improve MRI techniques for oncology. In 2020, Yu and his team introduced a self-assembling multifunctional star-shaped polyprodrug molecule as an integrated therpeutic and diagnostic platform for glioma therapy. The molecule was able to cross the blood-brain barrier and deliver anticancer-drugs and contrast agents to glioma cells. They also investigated the enzyme-directed self-aggregation of superparamagnetic iron oxide nanoparticles to improve the efficiency of MRI T2 imaging-guided photothermal therapy.

Yuxian Shen's team established that the enzyme, SYVN1 promoted degradation of a variant protein linked to SERPINA1/AAT-D, an autosomal recessive disorder, which leads to increased susceptibility to hepatocellular carcinoma (HCC), the most common type of liver cancer.

They also demonstrated that a protein called MANF, provided a link between endoplasmic reticulum stress (which occurs when proteins are misfolded), and liver inflammation, inhibiting the progression of HCC. A study on the pathogenesis of liver tumours led by Guoping Sun and Hua Wang examined how the endoplasmic reticulum stressed tumour cells and dysfunction of invariant natural killer T (iNKT) cells hinder treatment efficacy. It also suggested promoting lipid biosynthesis to augment the antitumour efficacy of iNKT cell-based immunotherapies.

Prostate cancer studies, led by researchers such as Chaozhao Liang, is another of AHMU's strengths. Previous research had found that the N-Myc protein was over expressed in about 40% of neuroendocrine prostate cancer patients and up to 20% of castration-resistant prostate cancer patients, and drove disease progession and resistance to hormonal therapy. In 2019, Liang and his colleagues identified a N-Myc-regulated DNA damage response pathway (N-Myc/miR-421/ATM), that contributes to this. The team suggested a combination therapeutic strategy based on an ATM inhibitor and the hormone treatment, Enzalutamide, to combat this. Liang also led a project which designed and synthesized prostate-specific membrane antigen-targeted arsenic nanosheets, an inorganic metal-free nanoplatform, for prostate cancer therapy. The nanoplatform induced ferroptosis and overrode chemotherapeutic resistance in both in vitro, and in vivo mouse studies. ■

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