

Twana Alkasalias

Twana Alkasalias has a bachelor's degree in biology from an Iraqi university and completed his master's degree in molecular physiology. He worked as an assistant lecturer and focused more on teaching than research. In 2012, he applied for a grant and started a PhD position at Karolinska Institutet in 2013, where they studied tumor microenvironment and its role in tumor growth. Alkasalias graduated in 2018 and briefly returned to their university before starting a new postdoctoral position. Currently, Alkasalias is an assistant professor at a department, focusing on cancer prevention, treatment modalities, and predicting cancer.

Alkasalias's interest in science was initially sparked during the third stage of his bachelor's degree when he took classes in cell biology and immunology. Despite facing challenges in his country's circumstances and educational system, he put a lot of effort into pursuing science and has achieved significant accomplishments, including his PhD.

During his PhD, Alkasalias initially worked on tumor microenvironment under a renowned scientist, George Klein. Klein unfortunately passed away before Alkasalias had the chance to defend his thesis, which led him to join Kaisa Lehti, who focused on ovarian cancer. In his last year of research, Alkasalias studied the interaction between fibroblast cells (microenvironment) and metastasized ovarian cancer cells. Specifically, he investigated how cancer-associated fibroblasts influence the response of ovarian cancer to chemotherapy. He developed a new method involving live cell imaging to observe the interaction in real-time. This work aimed to understand the development of resistance to treatment in ovarian cancer.

In summary, Twana Alkasalias is currently working on a research project related to cancer, specifically focusing on gynecological cancers such as breast and ovarian cancer. The main question he aims to address is why some people develop cancer while others do not. He explains that cancer is often characterized by the accumulation of mutations in genes, which can affect their functioning. However, there are certain mechanisms in the body that prevent the growth of cancer cells. Alkasalias mentions surveillance mechanisms and the immune system as key factors in preventing the development of cancer. He also discusses the role of hormone-responsive organs like the breast and ovaries in cancer development, particularly in individuals with mutations in the BRCA genes.

Alkasalias's research involves studying the effects of a drug called mifepristone on breast cancer cells in vitro. They have developed an organoid system using breast tissue samples and are conducting high-throughput experiments to analyze the genomic and transcriptomic changes in the cells after treatment with the drug. Additionally, he is involved in a clinical trial that collects samples from breast- and ovarian cancer patients to investigate the epigenetic changes associated with cancer development. The goal is to identify biomarkers and signatures that can be used for early cancer detection and prediction.

Alkasalias also mentions the importance of understanding the effects of progesterone signaling on different organs, such as the endometrium, to ensure the safety of treatments. He mentions his interest in studying chemotherapy's effects on ovarian cancer cells and the microenvironment. Finally, Alkasalias briefly mentions a project he intends to pursue in the future, focusing on high-grade serous ovarian cancer, which is known for its aggressiveness.

Scientists face several potential struggles in their work. One major challenge is the uncertainty of experimental outcomes. Sometimes experiments work and provide a sense of accomplishment and energy, but other times they fail after investing significant time and effort, leading to frustration. Scientists must constantly navigate various issues, such as equipment malfunctions, material shortages, and technical difficulties. They need to quickly identify and address these problems to keep their research on track.

Funding is another critical obstacle in science. Resources are limited, and scientists often require substantial funds to conduct experiments using advanced techniques or to address fundamental research questions. Insufficient funding can hinder their ability to pursue innovative ideas and obtain meaningful answers. The competitive nature of securing grants and the constant need for funding add further pressure to scientists' work.

Twana Alkasalias states “Ovarian cancer is one of the deadliest and most aggressive forms of cancer. Currently, there is no effective treatment available. As scientists, we are dedicated to finding ways to prevent or reduce the incidence of ovarian cancer and improve early detection. Early detection is crucial as late-stage diagnosis limits treatment options. We are grateful for the opportunity to contribute to this important cause alongside our colleagues. Our collective efforts aim to make advancements in the treatment of ovarian cancer and all types of cancer.”

Twana Alkasalias was interviewed by Moa Jernberg & Filippa Larsson