

From Labs to Lives

How Research Funding Solves Real-World Problems

Tiny Cell Particles Power Breakthroughs in Cancer Detection and Treatment

At UC Davis, Randy Carney is an associate professor of biomedical engineering who studies extracellular vesicles, or EVs, which are tiny particles released by cells that help them communicate. These nanoparticles travel through the body carrying information between cells, but in diseases like cancer, they can help tumors grow and spread. Carney's lab works to detect EVs in fluids like blood or saliva to develop early cancer diagnostics and engineering the vesicles as targeted drug delivery systems.

Helping Humanity

Carney's research could transform how cancer is detected and treated. Instead of just identifying whether cancer is present, his work aims to determine how aggressive it is — helping doctors avoid unnecessary treatments for low-risk cases. His work also moves toward a major goal in medicine: simple, early detection through non-invasive tests like blood samples. Catching diseases before symptoms appear could make many serious conditions more manageable and significantly improve survival rates.

// Early stage federal funding is just critical to support the development of new technologies that really benefit all of us.” — Randy Carney



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