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Pursuing Cardioprotective Health Through Research

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By Sterling Giles

Recent VCU Chemistry graduate Salma Omer and her team of fellow researchers discovered that the supplement Viagra, intended for treating erectile dysfunction, may protect the heart from diabetic damage and damage from excessive alcohol consumption.

Omer contributed to the study by performing cell culture studies on how the medication protects embryonic rat heart cells (known as H9C2 cells) from ethanol cardio toxicity.

She said she pursued chemistry at VCU because "[it's] one of the strongest programs in the state."

Omer said she appreciates her parents' support of her academic career and chosen field. She also said their expectations of her never softened.

"My parents pushed me forward in my career path as long as I worked hard," she said.

She utilized the Initiative for Maximizing Student Diversity (IMSD) scholars program, which gave her the opportunity to conduct research as an undergraduate student.

Omer began working on cardiovascular research at the end of her sophomore year at VCU. During her research, she sought to determine the cardioprotective effects of sildenafil on alcoholism in the heart.

With the help of her research lab, she designed a study on the harmful effects of alcohol in H9C2 cells under diabetic and non-diabetic conditions. The hypothesis was that alcohol will cause the cells to die by activating cellular pathways that are involved in programmed cell death.

The alcohol treatment induced cell death under normal and diabetic conditions. But the team found the cells can be protected by using sildenafil, sold as the medication Viagra. The results suggested that the therapeutic effects of sildenafil may be considered for further investigations to reduce heart damage caused by high alcohol consumption in live animals.

Omer graduated from the Department of Chemistry in May and will pursue her post-graduate degree in biomedical research at Vanderbilt University. She offered some advice to upcoming students and underclassmen pursuing the sciences.

"If you don't like to see failure more than success, then this career path is not for you," she said.