

New method for detecting nitroxyl will boost cardiac drug research

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Bruce King (right), professor of chemistry at Wake Forest University, works with graduate students Julie Reisz (left) and Erika Klorig on research to identify new chemical markers for nitroxyl to aid heart disease research. Credit: Ken Bennett/Wake Forest University

Wake Forest University scientists have developed a new research tool in the pursuit of heart medications based on the compound nitroxyl by identifying unique chemical markers for its presence in biological systems.

Nitroxyl, a cousin to the blood-vessel relaxing compound nitric oxide, has been shown in studies to strengthen canine heart beats, but research into its potential benefits for humans has been slowed by a lack of specific detection methods.

"I think this is a very powerful tool to help in the development of new drugs for [congestive heart failure](#)," said S. Bruce King, a professor of chemistry at Wake Forest who leads the team that conducted the research.

Researchers can generate nitroxyl from precursor chemicals under controlled conditions, but studying the molecule's activity in cells is difficult because its constituent elements—nitrogen, oxygen and hydrogen—react so readily with other molecules. King's research team used compounds that are not present in normal [cell biology](#) to produce a reaction that yields the identifying chemical markers.

King has been investigating nitrogen oxide compounds at Wake Forest since 1995. While scientists have established that the [human body](#) naturally produces nitric oxide, natural production of nitroxyl is suspected but has not been demonstrated. King said the new chemical markers could help answer that question, as well.

More information: The research is described in an article, "Reductive Phosphine-Mediated Ligation of Nitroxyl (HNO)," published online in the American Chemical Society's journal *Organic Letters*.

Source: Wake Forest University ([news](#) : [web](#))

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