

Drugs that do Their Job



Carston Wagner

Professor, Medicinal Chemistry, College of Pharmacy Endowed Chair in Medicinal Chemistry, College of Pharmacy
Director, Chemical Biology Initiative

CURRENT RESEARCH

Creating more effective and safer drugs with reduced side effects

Tiny, chemically-engineered drug particles are powerful elements that can either treat or threaten the conditions in your body. Especially for patients with a chronic pain or disease, the issue of effective and safe medication becomes much more critical and precautionary. In an ideal world, drugs would have no side effects, treat problems as they are designed to, and keep other healthy areas of the body safe. Dr. Carston Wagner, Professor & Endowed Chair of Medicinal Chemistry at the University of Minnesota, therefore researches ways to develop more effective and safer drugs, or therapeutics. By using a range of different techniques and disciplines that are not traditionally put together in chemistry, Dr. Wagner hopes to produce medicine with reduced side effects and increased performance.

Dr. Wagner and his team's research has already had a major impact on the development of new antiviral and anticancer drugs, such as the anti-HCV drug, Sovaldi. This research has in turn opened doors for them to create a new target for the treatment of chronic pain and drug addictions. Applying their insights from working at the interface of chemistry and biology, Dr. Wagner and his team have also been able to engineer immune cells with molecular "GPS devices". The modified patient immune cells are then enabled to seek and destroy cancer cells. Dr. Wagner hopes to expand the future of this multipurpose technology to tissue regeneration and vaccine development. Ultimately, the goal of Dr. Wagner's laboratory is to apply the principles of chemical biology and medicinal chemistry to design new chemical and cell-based therapies that will address difficult to treat diseases.

Current research areas...

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AFFILIATION

 University of Minnesota

EDUCATION

- B.S. in Chemistry 1981, University of North Carolina
- Ph.D. in Chemistry 1987, Duke University
- National Institutes of Health Post-Doctoral Fellow 1991, Pennsylvania State University

AWARDS

- Fellow, American Association for the Advancement of Science, 2012
- Excellence in Graduate Education Faculty Award, 2012
- 3M University Relations Award, 2002
- Teacher of the Semester, Pharm.D. II, Fall 1999
- N.I.H. First Award, 1993

RESEARCH AREAS

Life Science, Immunology / Inflammatory, Infectious, Neurological / Cognitive

FUNDING REQUEST

Your contributions will support the continued research of Dr. Carston Wagner and his lab at the University of Minnesota as they collaborate with multidisciplinary scientists to create new therapeutic approaches for the treatment of human diseases. Your donations will fund the \$500K/year required for personnel and research projects at almost every stage, facilitating development of more effective drugs that can serve their purpose to their fullest!