May 20th, 12:30 PM

Application of Diarylhydrazones, Schiff-bases and Their Saturated Derivatives as Multifunctional Inhibitors of Amyloid Self-Assembly

Christian Schafer  
University of Massachusetts Boston

Sanjukta Ghosh  
University of Massachusetts Boston

Marianna Torok  
University of Massachusetts Boston

See next page for additional authors

Follow this and additional works at: https://escholarship.umassmed.edu/cts_retreat

Part of the Biochemistry Commons, Medicinal-Pharmaceutical Chemistry Commons, and the Translational Medical Research Commons

Schafer, Christian; Ghosh, Sanjukta; Torok, Marianna; and Torok, Bela, "Application of Diarylhydrazones, Schiff-bases and Their Saturated Derivatives as Multifunctional Inhibitors of Amyloid Self-Assembly" (2014). UMass Center for Clinical and Translational Science Research Retreat. 130.  https://escholarship.umassmed.edu/cts_retreat/2014/posters/130

This material is brought to you by eScholarship@UMMS. It has been accepted for inclusion in UMass Center for Clinical and Translational Science Research Retreat by an authorized administrator of eScholarship@UMMS. For more information, please contact Lisa.Palmer@umassmed.edu.
**Presenter Information**
Christian Schafer, Sanjukta Ghosh, Marianna Torok, and Bela Torok

**Comments**
Abstract of poster presented at the 2014 UMass Center for Clinical and Translational Science Research Retreat, held on May 20, 2014 at the University of Massachusetts Medical School, Worcester, Mass.

**Creative Commons License**
This work is licensed under a Creative Commons Attribution-Noncommercial-Share Alike 3.0 License.
Application of Diarylhydrazones, Schiff-bases and Their Saturated Derivatives as Multifunctional Inhibitors of Amyloid Self-Assembly

Christian Schäfer,¹ Sanjukta Ghosh,¹ Marianna Török¹,² and Béla Török¹,²

¹Department of Chemistry, University of Massachusetts Boston, 100 Morrissey Blvd., Boston MA 02125; ²University of Massachusetts Center for Clinical and Translational Science

e-mail: christian.schaefer@umb.edu

A new class of multifunctional small molecule inhibitors of amyloid self-assembly is described. Several compounds, based on the diarylhydrazone scaffold were designed. Forty-four substituted derivatives of this core structure were synthesized using a variety of benzaldehydes and phenylhydrazines and were characterized. The inhibitor candidates were evaluated in multiple assays, including the inhibition of Aβ fibrillogenesis and the disassembly of preformed fibrils. The hydrazone scaffold showed strong activity in inhibiting the amyloid beta self-assembly. [1] The structure-activity relationship revealed that the substituents on the aromatic rings had considerable effect on the overall activity of the compounds.

In order to identify possible functional moieties responsible for the strong effect further related compounds (Schiff-bases and their hydrogenated product, secondary amines) were synthesized and tested in the inhibition of fibril formation by Thioflavin-T Fluorescence spectroscopy and the fibril morphology was followed by Atomic Force Microscopy. The data indicated that the N-N linkage appears important while the importance of the conjugation in the inhibitors could not be confirmed.