Method for the Identification of Urotensin II-Converting Enzyme Inhibitors

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Challenge

Since urotensin-II is the most potent vasoconstrictor peptide, the identification of inhibitors of its generating enzyme UCE represents a novel strategy for the development of a new drug class of antihypertensives. Thus a method to easily and quickly identify inhibitors of the UCE is needed.

Technology

A method for the identification of inhibitors of an urotensin-II-converting enzyme (UCE) has been developed for the first time. Human urotensin-II is one of the most potent vasoconstrictor peptide identified to date and high plasma levels have been detected in patients with essential hypertension, heart failure and atherosclerosis. Urotensin-II gets released and activated by cleavage of its prohormone pro-urotensin-II which is mediated by an UCE. The new technology allows the measurement of UCE-activity in a protein sample with the help of mass-spectrometry-assisted enzyme screening (MES-assay) developed by the inventor. Schlüter.

The validation of the enzyme activity is based on the mass spectrometric detection of its product, the Urotensin-II and the decrease of its educt, the UCE-substrate / pro-urotensin-II. Furthermore, the method enables a purification procedure of a urotensin-II-converting enzyme-containing sample by chromatographic purification with the help of protein-purification parameter screening (PPS) as well as the identification of the purified enzyme by peptide mass finger printing / mass spectroscopy.

Commercial Opportunity

- No UCE has been identified before method has been developed
- First published method for the measurement of UCE-activity and for the identification of UCE-inhibitors
- Identified UCE-inhibitors represent a new drug class of antihypertensives
- New antihypertensive drugs are needed since many antihypertensives present on the drug market show unintentional adverse effects or are partial ineffective in certain patient groups

Developmental Status

Concept

Patent Situation

A German Patent Application has been filed at the DPMA on October 19, 2006 (DE 102006049 822.4). A PCT Application has been filed on October 18, 2007