

Cubilin Renal Receptor and Related Renal Failure Therapeutics

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Technology description

Researchers led by Dr. Timothy Hammond at Tulane University and Dr. Pierre Verroust in France have identified cubilin, a major renal receptor protein that mediates the toxicity of a number of small ligands by cell uptake. The multiligand cubilin receptor is massively expressed in the proximal convoluted tubule. Cubilin is a 460 kd protein containing 13%-14% carbohydrates and is composed of a large repeating array of ligand binding CUB (complement C1r/C1s, UEGF, and Bone morphogenic protein-1) domains. A list of cubilin-binding ligands includes hemoglobin-based artificial blood products, polybasic drugs such as aminoglycoside antibiotics, myeloma light chains, albumin, transferrin, and apolipoprotein A-I.

Application area

The development of cubilin-based therapeutic agents to prevent or manage renal toxicity in patients treated with artificial blood or aminoglycoside antibiotics.

Advantages

Development of therapeutic agents to prevent renal toxicity from hemoglobin-based artificial blood products and aminoglycoside antibiotics
Development of therapeutic agents to remove heavy metals from the body
Development of therapeutic agents for the treatment/prevention of acute renal failure

Institution

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