Expression of Thombin Variants

Published date: Aug. 3, 2012

Technology description

Summary:
Although substantial progress has been made in the prevention and treatment of cardiovascular disease and its major risk factors, it has been predicted that thrombotic complications will remain the leading cause of death and disability and will represent a major burden to productivity worldwide well into the year 2020. It would be beneficial to have an antithrombotic agent that can be administered to patients with severe acute thrombotic diseases without the risk of causing hemorrhage, as experienced with antithrombotic/thrombolytic therapy in the treatment of acute ischemic stroke or systemic anticoagulants like heparin.

The present invention, in one aspect, contemplates a bacteria-derived (or -expressed) new recombinant E-WE thrombin enzyme precursor such as E-WE preprothrombin, E-WE prothrombin, E-WE prethrombin-1, E-WE prethrombin-2 and E-WE meizothrombin that contain the SEQ ID NO:1 amino acid residue sequence and are preferably Escherichia coli culture- derived or -expressed (E. coli-derived; or E. coli-expressed). A contemplated E-WE construct contains the SEQ ID NO:1 amino acid residue sequence, and preferably contains the SEQ ID NO: 5 amino acid residue sequence. A bacterially-expressed, glycosylation-free E-WE thrombin is also contemplated that contains the SEQ ID NO:1 amino acid residue sequence. It has unexpectedly been discovered that a recombinant E-WE thrombin prepared from a bacteria- expressed precursor is surprisingly safer and has a greater anticoagulant (anti-thrombotic) therapeutic effect than a glycosylated WE thrombin expressed in a mammalian cell line from the same DNA coding sequence.

Institution

Saint Louis University

Inventors

Enrico Di Cera
Nicola Pozzi
Biochemistry & Molecular Biology
Leslie Pelc

Research Assistant, Sr.

Biochemistry & Molecular Biology

Andras Gruber

David Wood

Prafull Gandhi

联系我们

叶先生

电 话：021-65679356

手 机：13414935137

邮 箱：yeyingsheng@zf-ym.com