domain of PAR-1 receptor by thrombin. Proteolysis generates new N-terminal ligand domains (SFLLRN (SEQ ID NO:1), a.k.a. thrombin receptor agonist peptide-6, TRAP6) that interact with the receptor within the extracellular loop 2 and triggers the signaling pathway of PAR-1 activation. It has been proven that short TRAP6 peptide (SFLLRN) could work as a potent platelet activator separately and stimulates platelet aggregation via PAR-1 signaling.[15] Multiplate® TRAP test has become a standard in vitro assay in whole blood or in platelet rich plasma for quantitative determination of platelet function triggered by TRAP6. TRAP test allows analysis of platelet function activated through PAR-1 signaling without triggering fibrin formation, which otherwise occurs when thrombin is the agonist, because of using a thrombin inhibitor in the sample.

WO 96/40033 A1 discloses a hemostatic material with hemostatic agents, including epsilon aminocaproic acid and a thrombin receptor activating peptide, wherein the hemostatic agents are sprayed or coated on a hemostatic matrix so as to obtain a matrix wherein the agent is physically (but not covalently) adsorbed on the matrix. Such patches have the drawback that the hemostatic agents provided therewith easily release from the patch when contacted to a bleeding area of a patient. Such there is the potential danger of inducing systemic thrombotic events, especially since there are no circulating antagonists in the circulation.

WO 03/057072 A2 discloses hemostatic compositions comprising cellulose and a polysaccharide covalently linked thereto.

It is an object of the present invention to provide improved hemostatic material with thrombin receptor activating agents for controlling bleeding.

Summary:

In one aspect of the present disclosure, there is provided a hemostatic material, wherein a thrombin receptor activating agent is covalently coupled to a biocompatible matrix.

In another aspect of the present disclosure, there is

provided a method for producing a hemostatic material as defined herein, wherein a thrombin receptor activating agent in covalently coupled to a biocompatible matrix.

In yet another aspect of the present disclosure, there is provided a hemostatic material as defined herein for use in surgery and/or in the treatment of injuries and/or wounds.

In a further aspect of the present disclosure, there is provided a kit, preferably for use in surgery and/or in the treatment of injuries and/or wounds, comprising

- a hemostatic material as defined herein and
- at least one administration device, preferably selected from the group buffer solution, especially a buffer solution containing Ca^{2+} ions, a syringe, a tube, a catheter, forceps, scissors, a sterilising pad or lotion.

Description:

With the present invention it is shown for the first time that a thrombin receptor activating agent can be covalently immobilized on a biocompatible matrix so as to obtain an improved hemostatic material suitable for administration to human patients in need thereof. As a preferred embodiment, covalent coupling of TRAP6, TRAP7 or TRAP8 to a synthetic