6 Summary

The aim of the study was to find, purify and identify an urotensin-II converting enzyme (UCE) in human plasma. The MES-system (mass spectrometry assisted enzyme-screening system) was used for the detection of the UCE activity. In a homogeneous fraction, which was obtained after four chromatographic purification steps, the protease complement factor I was identified. The identity was verified by detecting urotensin-II generating activity in a commercial complement factor I fraction. Furthermore it was shown that the purified active fraction hydrolyzed a typical complement factor I substrate. Both, the purified fraction and the complement factor I fraction, showed identical substrate specificity.

The purified fraction and the complement factor I fraction both were inhibited by aprotinin and pefabloc SC, two serine protease inhibitors.

Both the UCE and the complement factor I fraction have N-linked oligosaccharide type polysaccharide chains. The molecular weight of UCE is identical with the complement factor I. Urotensin-II (UII) seems to be an important factor in inflammation. It is responsible for biological effects of inflammatory reaction.

In conclusion, the complement factor I is identified as an UCE and UII is associated with inflammation and the complement system.