**Supplemental Figure Legends**

**Supplemental Figure 1: Impact of ThAlb on the VS-I/Alb(10-6) ratio.** Medians in patients infused with 20%-ThAlb (grey) or 4%-ThAlb (black). The lower bounds of the error bars equal the 1st quartiles and the upper bounds the 3rd quartiles. At H48, the Mann-Whitney test shows a significant difference between the medians (*p*<0.001).

**Supplemental Figure 2:** **SPR analyses of the interaction of VS-I and rVS-I with HSA and BSA.** (A)**,** Isolation of natural VS-I fromchromaffin granules by RP-HPLC. (B) BSA and HSA were injected onto a sensor chip coated with PEI. The response of minimum angle variation was recorded as a function of time. (B), fraction E, corresponding to VS-I and identified by its N-terminal sequence (LPVNPM) interacts with BSA; (C), rVS-I interacts with BSA and HSA.

**Supplemental Figure 3: SPR analyses of the interaction of different VS-I derived fragments with BSA.** BSA was first injected onto a PEI-coated sensor chip; (A),Sequences are from UniprotKB: b, P05059; h, P10645. The disulfide bridge between C17 and C38 and different fragments are indicated. (B), bVS-I7-57 (CgA7-57)without disulfide bridge, bVS-I4-16, (CgA4-16) bVS-I47-66 (CgA47-66) and bVS-I65-76 (CgA65-76)were injected onto the chip. (C), bVS-I1-64 (CgA1-64)and bVS-I17-40 (CgA17-40)were injected onto the chip. (D), bVS-I1-64 (CgA1-64 was injected onto the BSA chip at pH7.4 and then pH6 was applied. (E), rVS-I, bVS-I13-40 (CgA13-40)and bVS-I61-76 (CgA61-76)were immobilized on a CM5 Biacore chip using amine-coupling chemistry. The sensograms were analyzed using BIAevaluation software. RU, response unit (One RU represents the binding of 1 pg of protein per square mm).

**Supplemental Figure 4: Demonstration of the anti-oxidative effect of ThAlb on [O]rVS-I by RP-HPLC and mass spectrometry.** (A),RP-HPLC control of [O]rVS-I, VS-I) and ThAlb. (B), RP-HPLC of [O]rVS-I treated with 4%-ThAlb; (C), comparison of expected and experimental molecular mass corresponding to rVS-I, [O]rVS-I and [O]rVS-I treated with 4%-ThAlb according to Methods. For each experimental molecular mass the number of oxidized sites is indicated.

**Supplemental Figure 5: Mass spectrometry analysis (ESI).** (A), rVS-I; (B), [O]rVS-I; (C and D), Fraction 2 and 3 resulting from HPLC after treatment of [O]rVS-I with 4%-ThAlb.