

# Inhibition of the procarboxypeptidase U (proCPU, TAFI, proCPB2) system due to hemolysis.

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## Background

### Carboxypeptidase U (CPU, TAFIa, CPB2)

- Potent attenuator of fibrinolysis.<sup>1</sup>
- Inactive precursor (proCPU, TAFI, proCPB2) in the blood: activated by thrombin, thrombin-thrombomodulin and plasmin.
- Very short half-life (8-15 min) due to thermal inactivation (CPU<sub>i</sub>).<sup>1</sup>

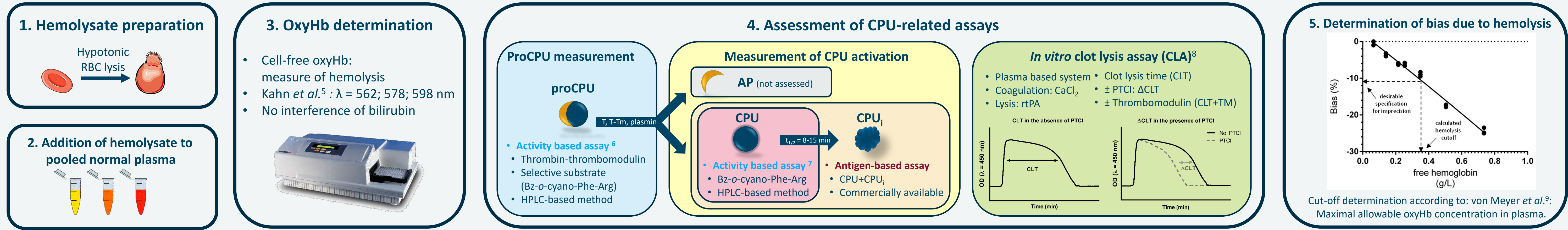
### Spurious hemolysis

- Leading cause of interference in hemostasis testing:<sup>2</sup>
  - Spectral and biological interference described.
- Significantly enhances fibrinolysis in functional fibrinolysis assays (TEG).<sup>3</sup>
- Inhibition of CPU-related effect in functional assays due to red blood cells (RBC)s.<sup>4</sup>

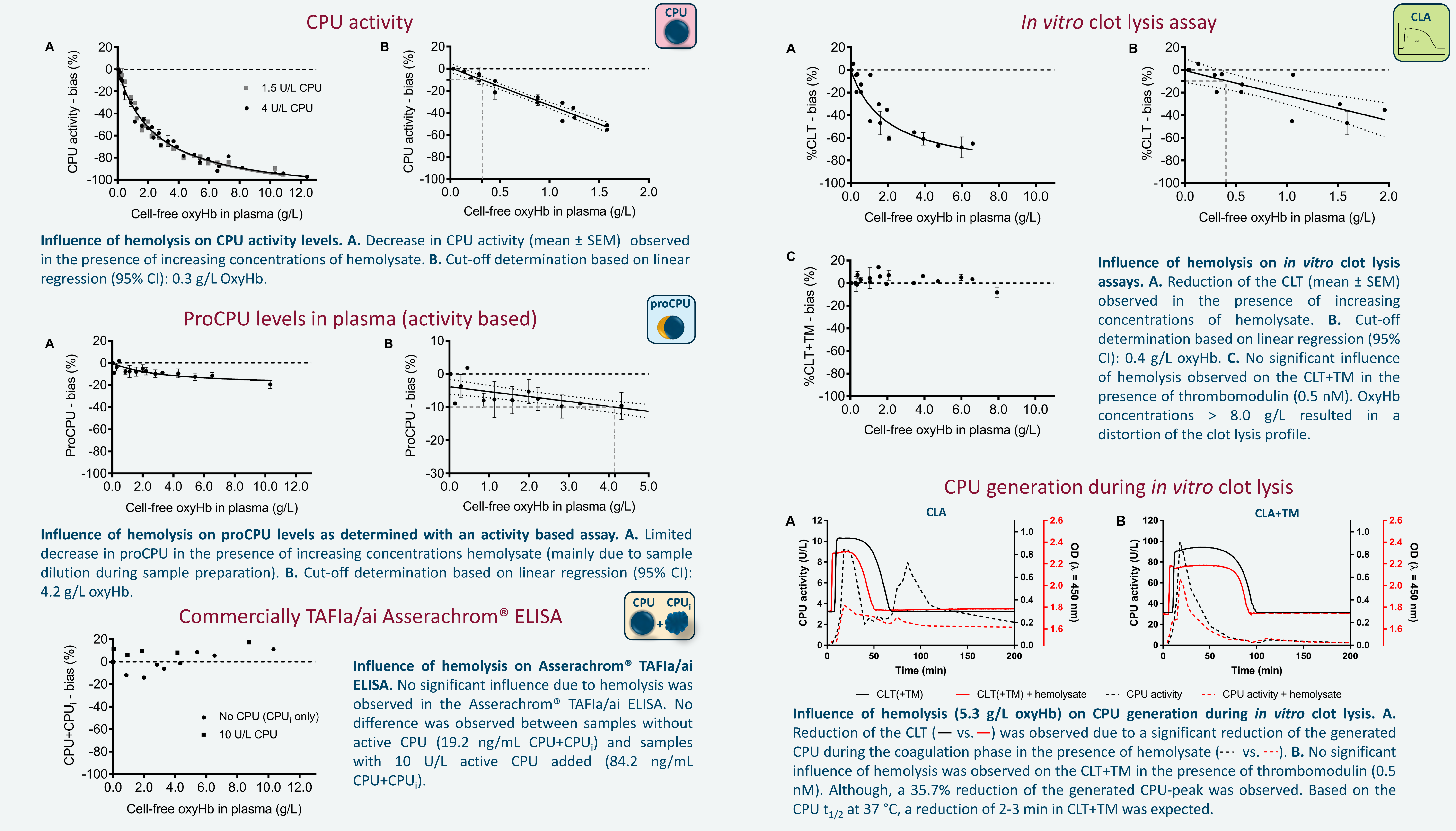
## Objectives

- A. Validation of activity based, functional and immunological assays of the CPU system in the presence of hemolysis.      B. Determination of maximal allowable oxyhemoglobin levels for all assays described.

## Methods



## Results



## Conclusions

### The CPU system is inhibited by hemolysis

- Activity based assays affected.
- Functional assays also affected.
  - Influence due to inhibition of active CPU during analysis.
- Commercial CPU+CPU<sub>i</sub> ELISA not affected.

Parameter	Bias	oxyHb cut-off (g/L)	Hemolysis category*	Visual assessment*
CPU activity	-10 %	0.3	Slightly hemolyzed	Yellow to slightly pink
ProCPU <sup>†</sup>	-10 %	4.2	Grossly hemolyzed	Red to brown
Clot lysis assay (CLA)				
CLT <sup>‡</sup>	-5 %	0.4		
ΔCLT	-10 %	0.4	Mildly hemolyzed	Pink to slightly red
%CLT	-10 %	0.4		
CLA with TM	N/A	8.0	Grossly hemolyzed	Red to brown
Asserachrom® TAFIa/ai	N/A	10.3 <sup>§</sup>	Grossly hemolyzed	Red to brown

Overview of oxyHb cut-off levels. \*Categories based on Lippi *et al.*<sup>2</sup>

## References

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