



Development of a video-microscopic method to compare the effect of a precipitation inhibitor

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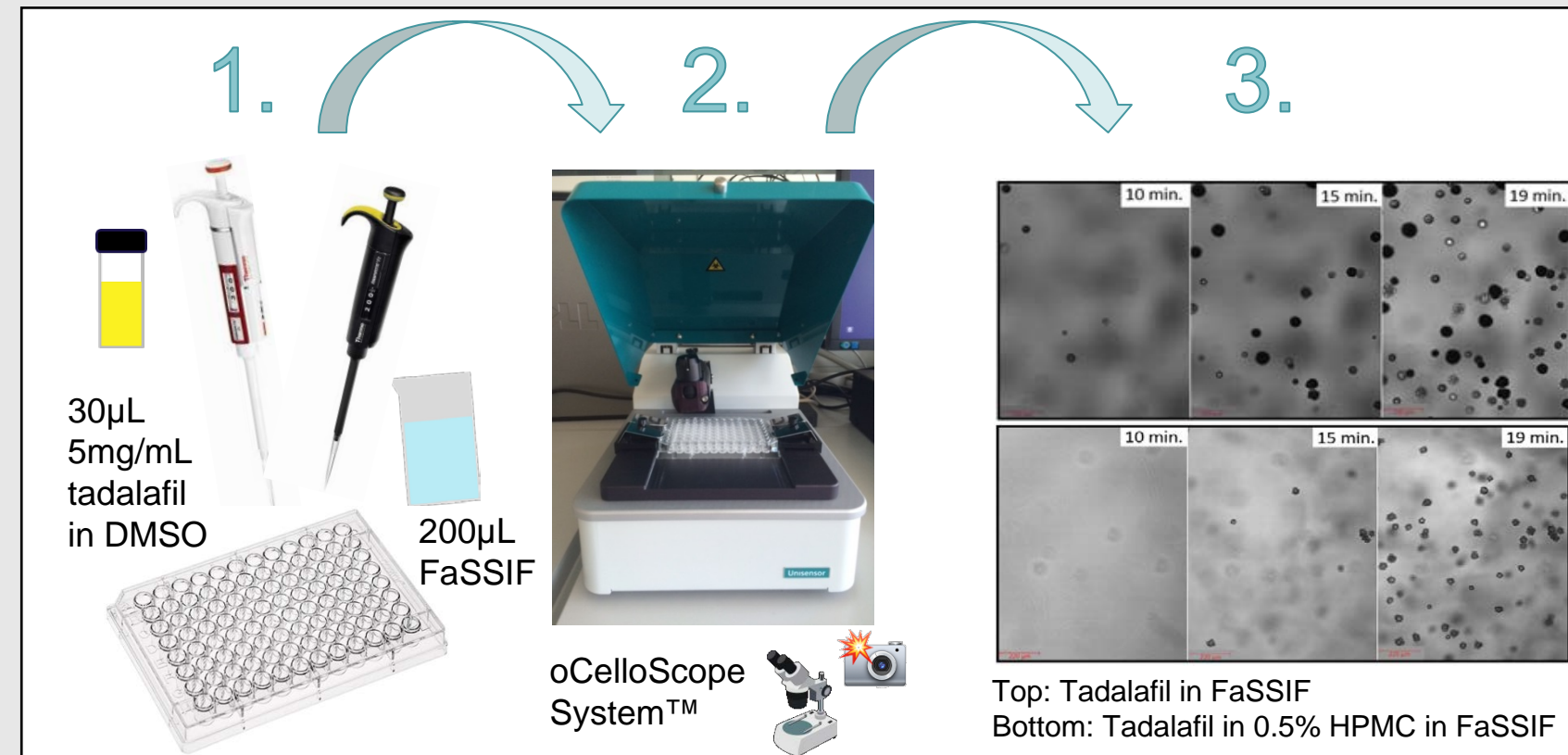
PURPOSE

The aim of this study was to develop a video-microscopic method to evaluate the effect of a precipitation inhibitor (PI) on supersaturated solutions of the poorly soluble drug tadalafil using a novel small scale setup.

CONCLUSION

- Tadalafil shows a prolonged induction time and a reduced growth rate in presence of HPMC.
- To significantly prolong the induction time and decrease particle growth, 0.01 % w/v HPMC is needed.
- This is a promising tool for evaluating the effect of PI's on induction time and crystallization rate of supersaturated systems of poorly soluble drugs.

METHOD



ACKNOWLEDGEMENTS

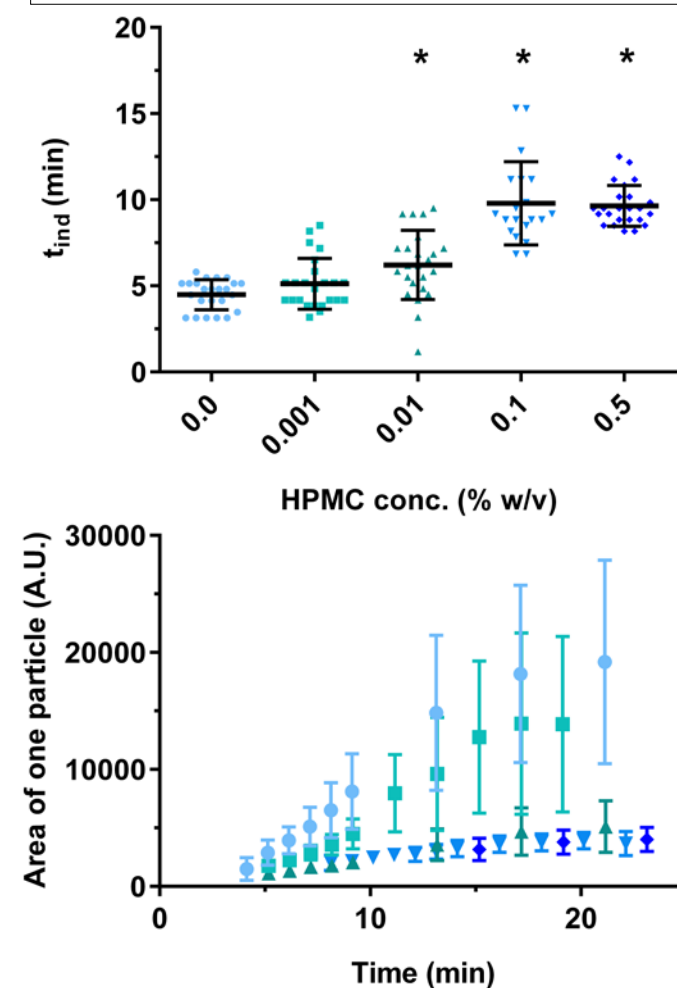
Philips BioCell A/S is acknowledged for support and access to the equipment.

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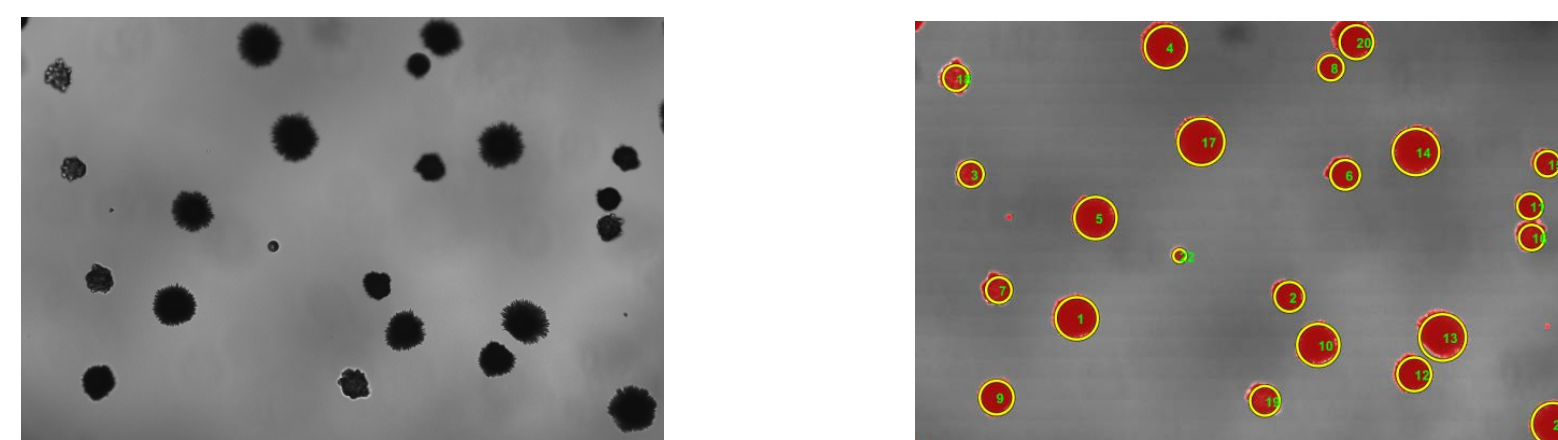
RESULTS

Proof of Concept using the commercial software



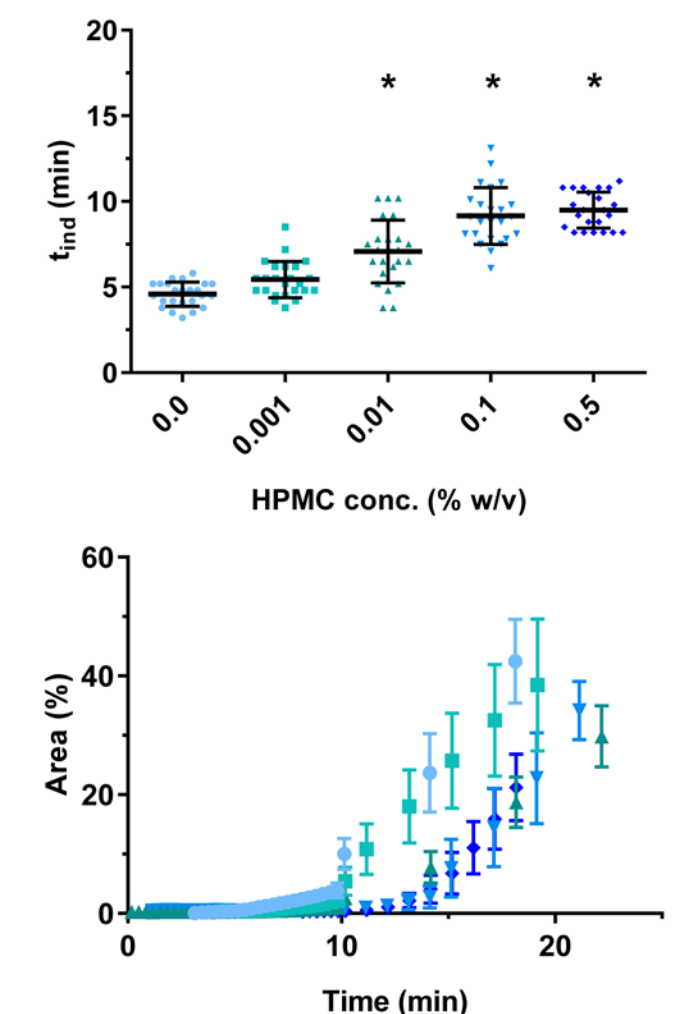
Top: Induction time for tadalafil in presence of HPMC
Bottom: The area of one well defined particle per well as a function of time, with different HPMC conc., mean \pm SD, n=3-24

Segmentation



- 0.0 % (w/v) HPMC
- 0.001 % (w/v) HPMC
- ▲ 0.01 % (w/v) HPMC
- ▼ 0.1 % (w/v) HPMC
- ◆ 0.5 % (w/v) HPMC

Improved Image analysis



Top: Induction time for tadalafil in presence of HPMC
Bottom: The total particle area as a function of time, with different HPMC conc., mean \pm SD, n=24