

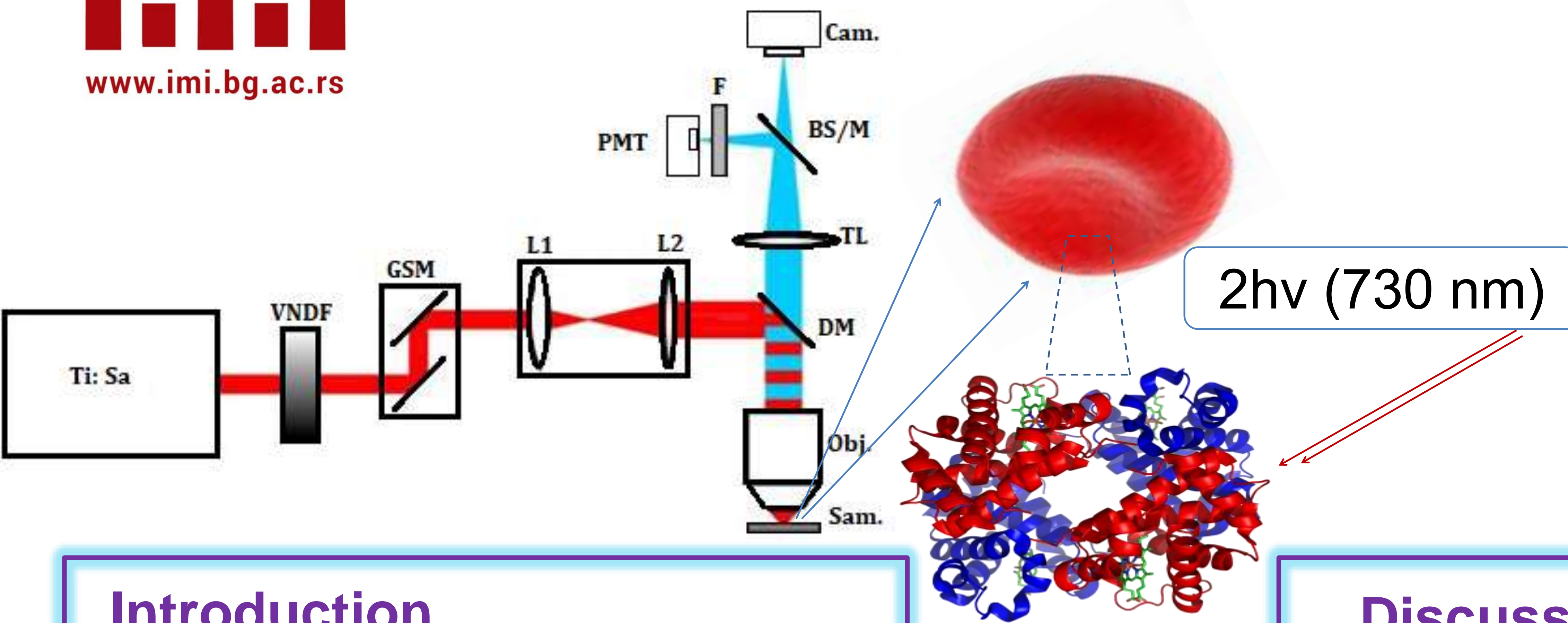
# Interaction of ultrashort laser pulses with hemoglobin as a tool for selective erythrocytes photo-labeling

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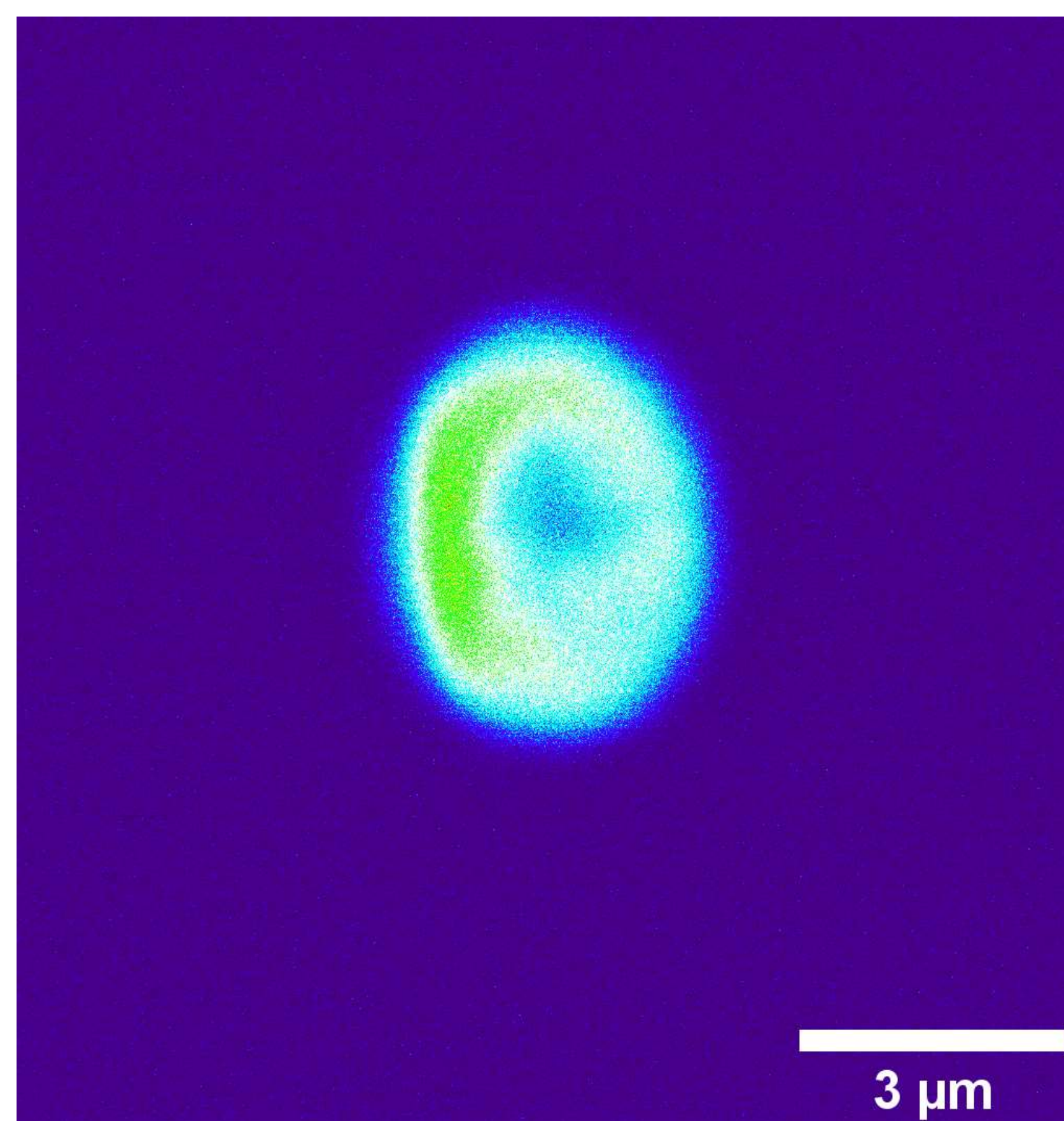
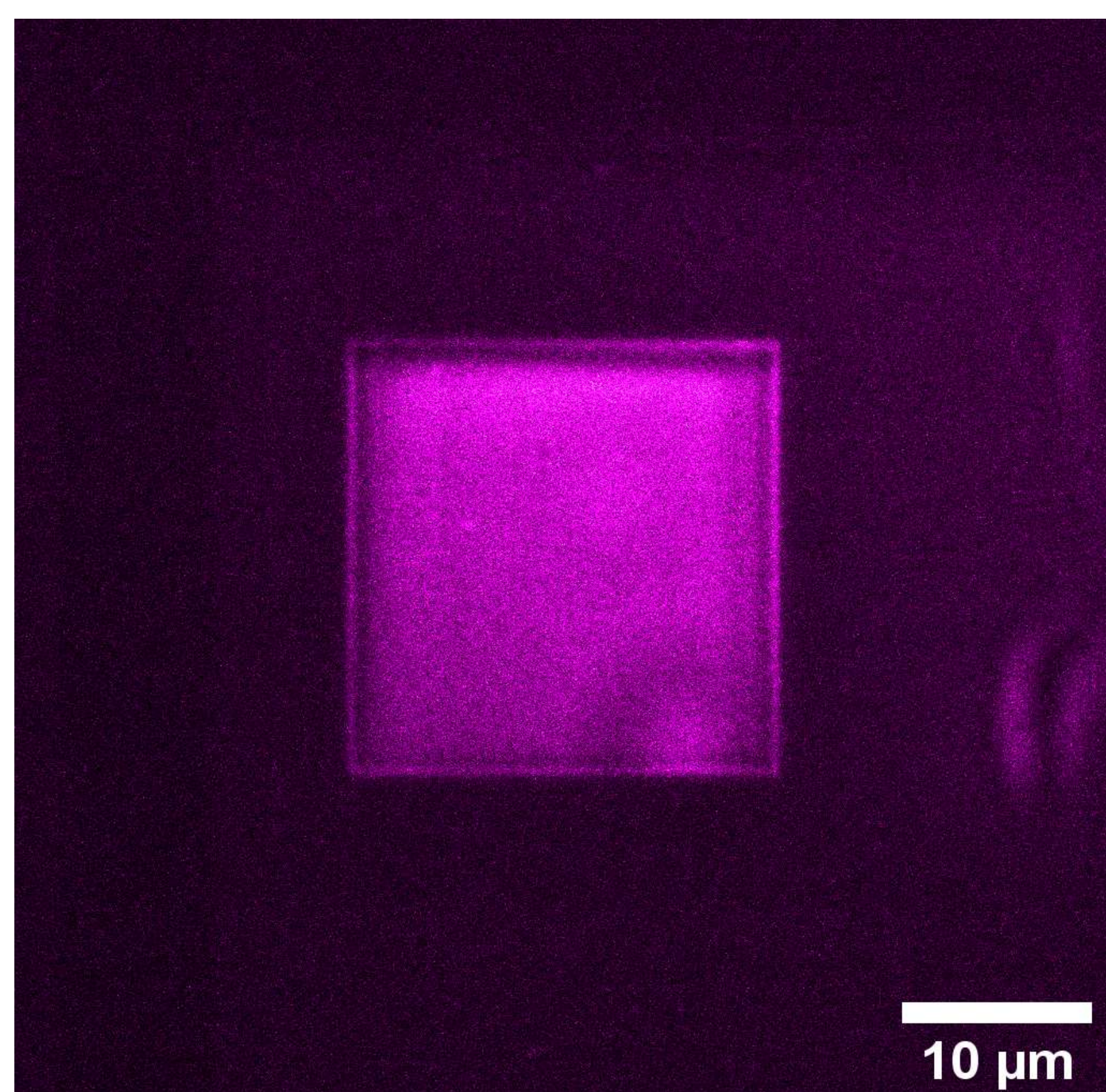


## Introduction

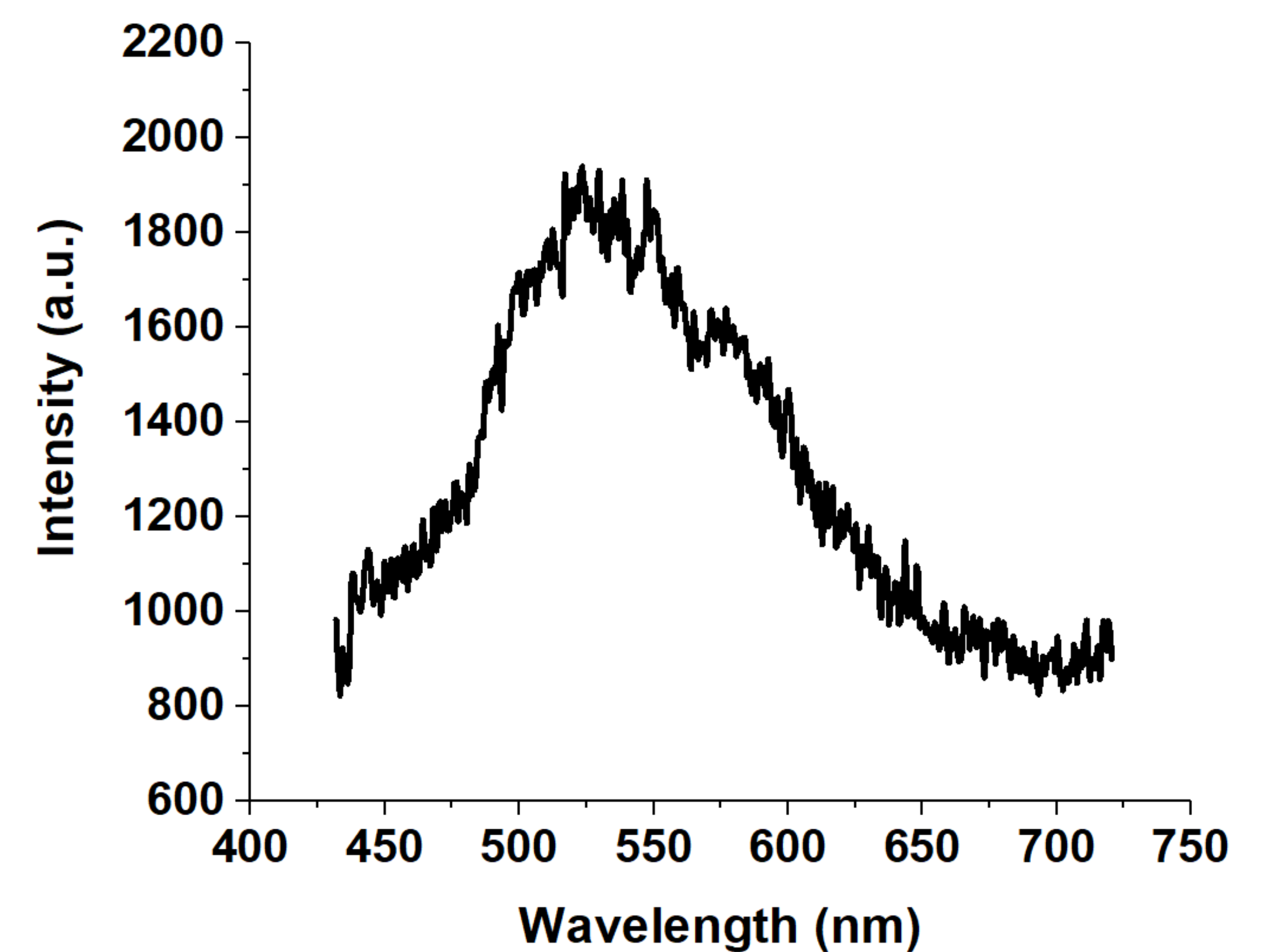
- ◆ Detection of fluorescence emission during the interaction of hemoglobin (Hb) with ultrashort laser pulses was observed [1, 2].
- ◆ The latest results suggest that the interaction of ultrashort laser pulses with Hb is associated with the formation of Hb photoproduct [3].

## Discussion & Conclusion

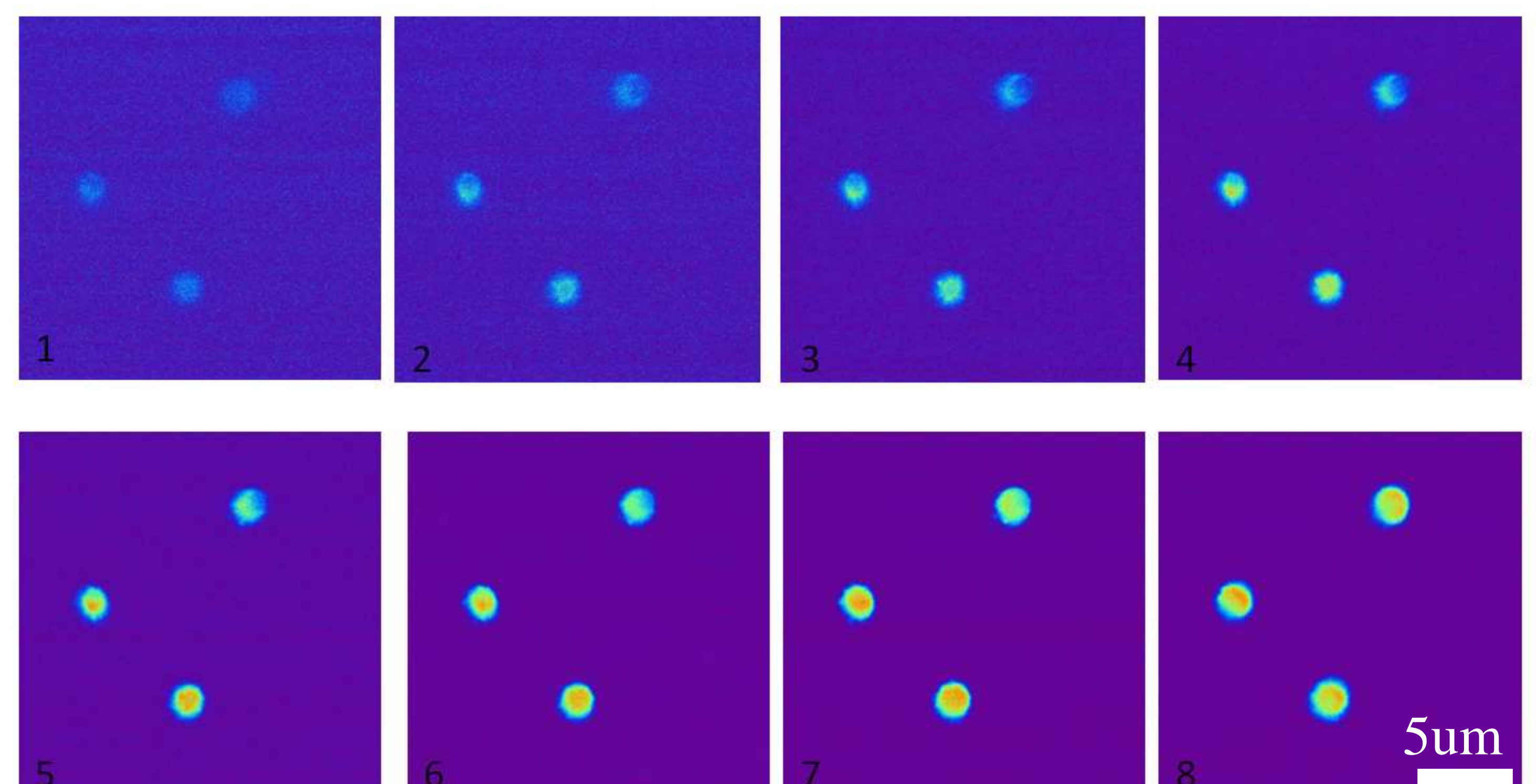
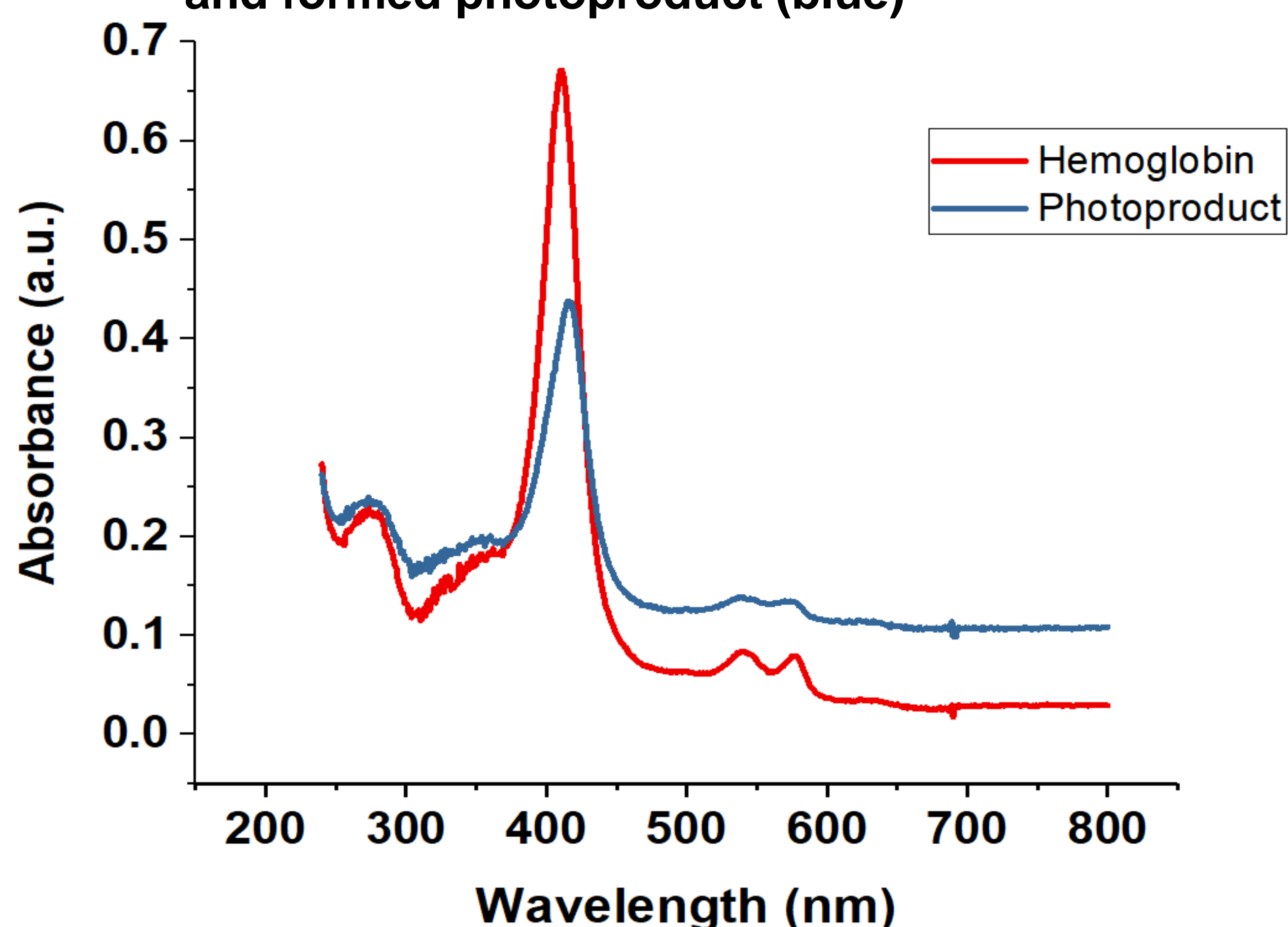
- ◆ **Label free** imaging of erythrocytes is possible due to Two-photon fluorescence and formation of photoproduct.
- ◆ Fluorescence intensity increase during exposure to the ultrashort laser pulses.



Two-photon emission spectra of photoproduct



Uv/VIS absorption spectra of hemoglobin (red) and formed photoproduct (blue)



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## References

- [1] G. Clay et al., *The Journal of chemical physics* 126.2 (2007), 01B609
- [2] D. Li et al., *Optics letters*, 36(6)(2011), 834-836.
- [3] E. A. Shirshin et al., *Laser Physics Letters*, 15(7)(2018), 075604