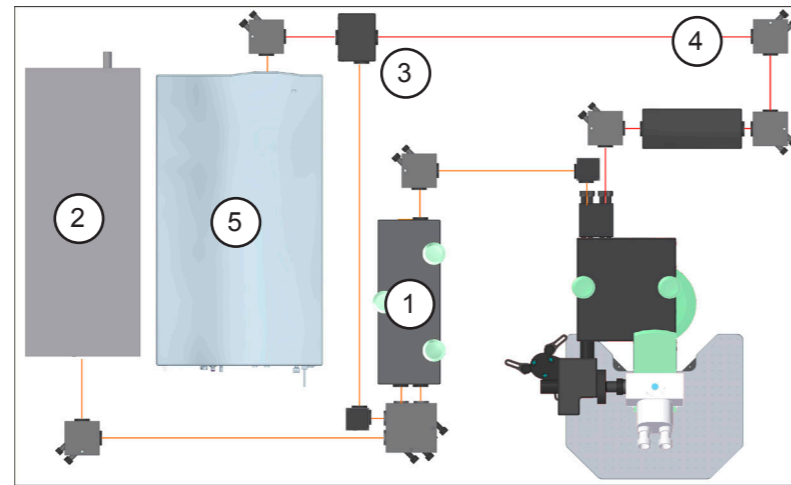


Laser Configurations

Spectra Physics InSight Laser and additional Ti:Sa Laser

If the application requests the simultaneous activation of multiple dyes an InSight single beam version can be combined with a standard Ti:Sa laser.



2400 x 1500

- ① Beam Optimizer
- ② Ti:Sa Laser
- ③ Dichroic Mirror 1080 nm
- ④ OPO Beam Path
- ⑤ InSight Laser

Visible cw-Laser

In addition to the mentioned laser configurations any TriM Scope II can be equipped with a single or a set of visible lasers for laser-treatments such as photo-activation or opto-genetics.

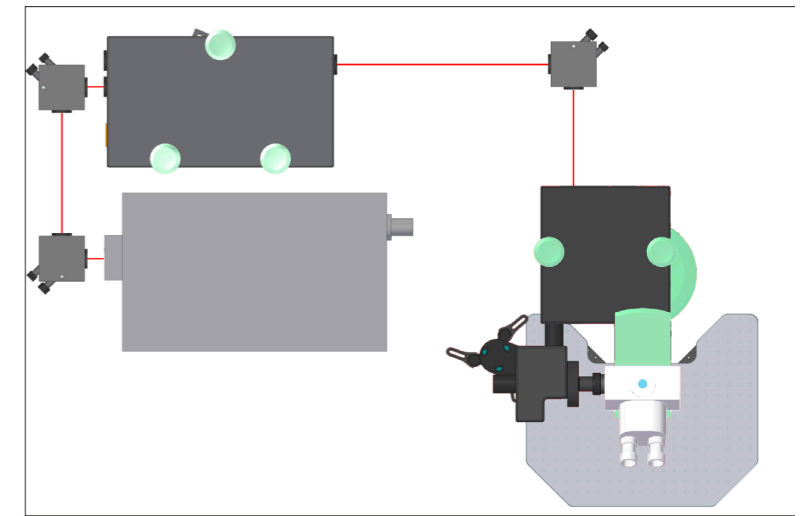
More flexibility needed?

Please contact our sales department if your experiments requests alternative designs or specific implementations. We provide solutions for polarisation dependent measurements as well as synchronizing fs-laser sources.

>> The TriM Scope II supports various laser configurations that can be adapted to the application. The most common setups are listed in this document.<<

Single Ti:Sa Laser

This is the most common setup for most 2-photon microscopes. The configuration allows excitation wavelengths between 680 and 1080 nm. Therefore the excitable fluorophores are limited to blue, green and yellow dyes/proteins, only a few red dyes/proteins can be excited by Ti:Sa lasers.

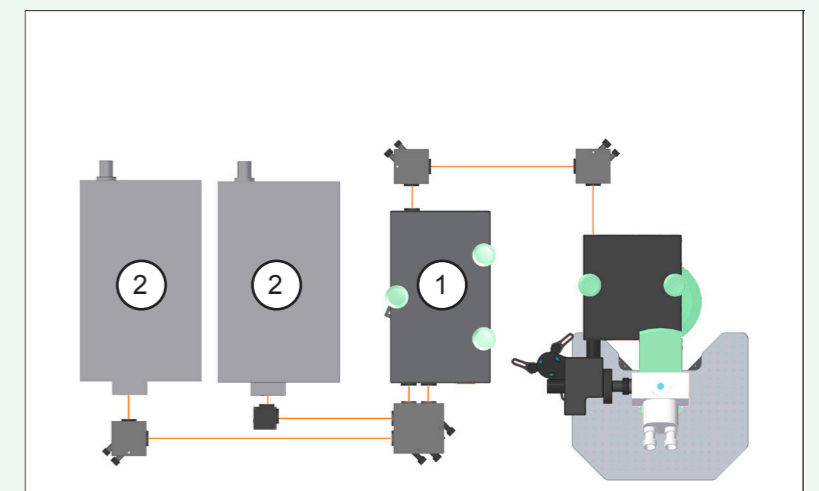


1800 x 1200

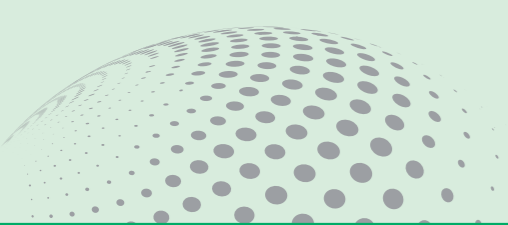
Two Ti:Sa Lasers

If the application requests the simultaneous excitation of several dyes with different excitation spectra a second Ti:Sa laser can be added to the setup. Both laser beams can be used simultaneously. In an alternative application one of the two lasers can be operated in imaging mode as the other one can be used for photo-treatment purposes (Photo activation, FRAP, uncaging, etc).

- ① Beam Optimizer with Chirp Compensation
- ② Ti:Sa Laser

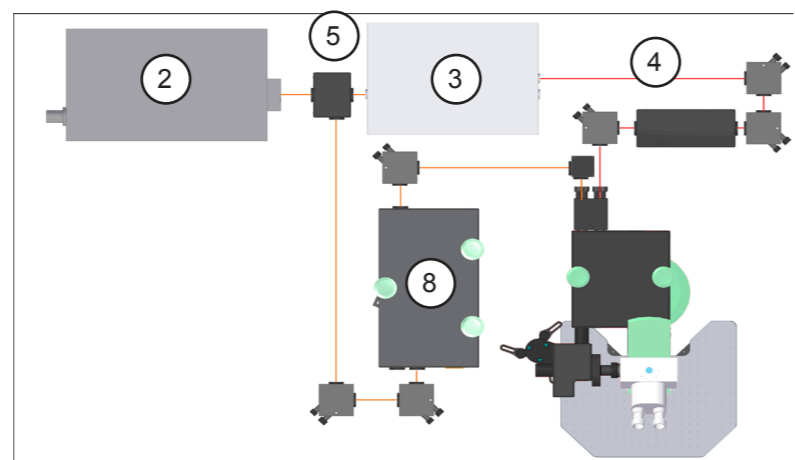


2400 x 1500



Single Ti:Sa laser and OPO

If the application requests deeper penetration and the excitation of red dyes or proteins an OPO can be added to the setup. This configuration provides simultaneous Ti:Sa laser (740-880 nm) and OPO (1000-1600 nm) imaging and therefore allows the excitation of blue, green, yellow and red dyes/proteins at once. By utilizing a variable beam splitter between Ti:Sa laser and OPO the fraction of Ti:Sa laser power that is used for direct imaging can be chosen by the operator and can be adapted to the individual experimental setup. The OPO Beam Path is optimized for wavelengths >1080 nm and includes correction optics to ensure the Ti:Sa and the OPO focus will be in the identical object plane. LaVision BioTec installed the first commercial OPO set-up in 2004.

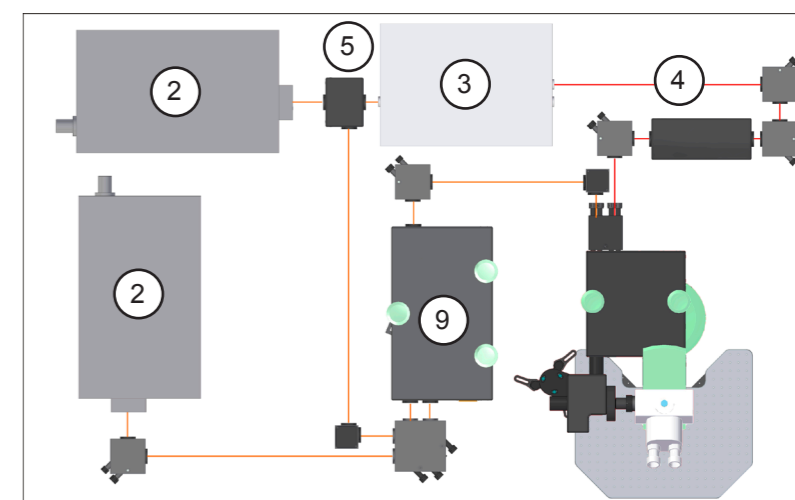


2400 x 1500

Two Ti:Sa Lasers and OPO

If the application requests the simultaneous excitation of numerous dyes/proteins an additional Ti:Sa laser can be added to the setup. One of the two Ti:Sa lasers is used for imaging only while the other Ti:Sa laser is used for imaging and pumping the OPO. Advantage:

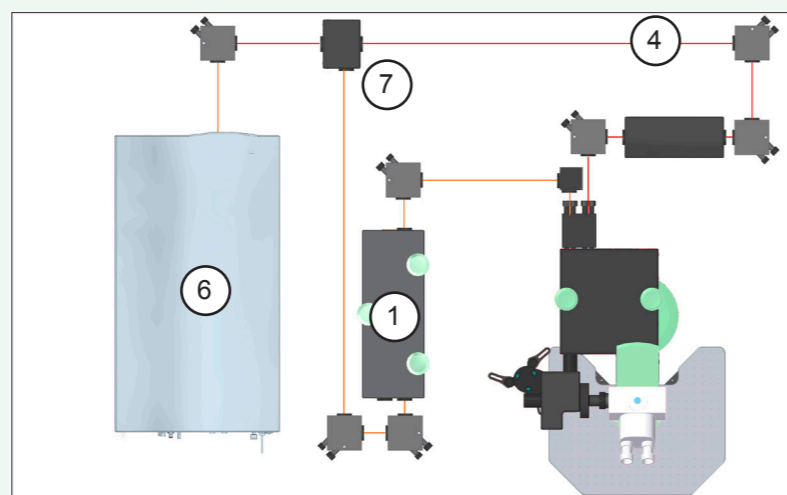
- Specific SHG excitation
- Excitation of GFP at the best signal to noise ratio



2400 x 1500

Spectra Physics InSight Laser

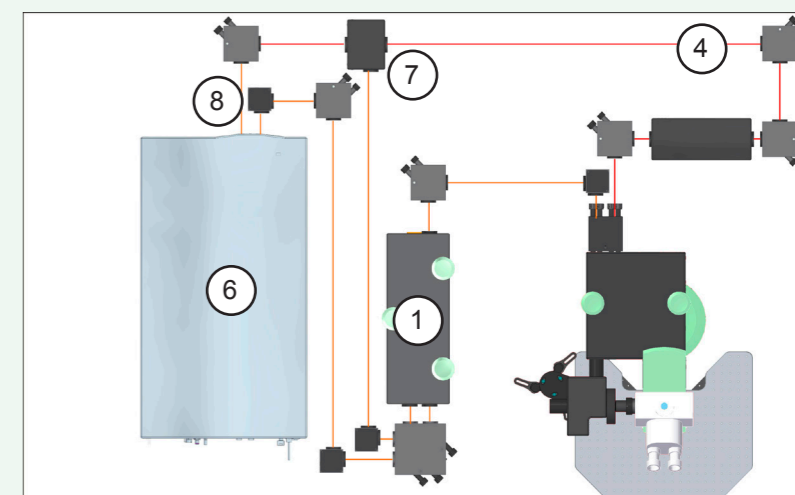
The new spectra physics InSight laser allows a wider tuning range (680-1300 nm) than any Ti:Sa laser and allows the excitation of blue, green, yellow and red dyes/proteins. In opposite to the Ti:Sa/OPO combination the InSight allows continuous tuning without any spectral gap. LaVision BioTec's long experience in OPO based 2-photon systems guarantees that optical performance is optimized over the whole spectral bandwidth.



2400 x 1500

Spectra Physics InSight Laser Dual Option

The Spectra Physics InSight laser can be ordered as a dual beam version that features one tunable beam [680-1300 nm] and a fixed wavelength beam [1041 nm]. Both laser beams can be used simultaneously. The fixed wavelength beam and the fraction of the tunable wavelengths beam that is below 1060 nm will be guided via the Ti:Sa pathway that is optimized for this wavelengths. The longer wavelengths fraction of the tunable beam will be guided via the OPO beam path that is corrected for this wavelengths.



2400 x 1500

- ① Beam Optimizer
- ② Ti:Sa Laser
- ③ OPO
- ④ OPO Beam Path
- ⑤ Variable Beam Splitter
- ⑥ InSight Laser
- ⑦ Dichroic Mirror 1060 nm
- ⑧ Beam Optimizer with Chirp Compensation

- ① Beam Optimizer
- ② Ti:Sa Laser
- ③ OPO
- ④ OPO Beam Path
- ⑤ Variable Beam Splitter
- ⑥ InSight Laser
- ⑦ Dichroic Mirror 1060 nm
- ⑧ 1041 nm
- ⑨ Beam Optimizer with Chirp Compensation