



## Fourth-Laser Upgrade for iGeneration Systems

We are pleased to announce the Fourth-Laser Upgrade option now available for iGeneration LSC systems. This new option allows users to take advantage of the significantly expanding variety of dyes which are now becoming available. To facilitate the expansion of excitation laser lines resident within the system, we are offering solid-state lasers, along with design modifications which reduce the size of many optical and mechanical components in the excitation laser beam path.

iGeneration users may select from the following combinations of laser lines and associated emission filter cubes, available for configuring new systems or upgrading existing systems:

### **Configuration A: 405, 488, 532, 633:**

LASER LINES	405nm	488nm	532nm	633nm
Laser Type	Diode	DPSS	DPSS	HeNe
Standard Emission Filters	425-455nm	500-521nm	550-600nm	650-800nm
Optional Emission Filters		500-530nm	565-595nm	
Standard Absorption Filters	532nm ShortPass	488nm Bandpass or 532nm ShortPass	532nm ShortPass	633nm Bandpass

### **Configuration B: 405, 488, 561, 633:**

LASER LINES	405nm	488nm	561nm	633nm
Laser Type	Diode	DPSS	DPSS	HeNe
Standard Emission Filters	425-455nm	515-545nm	575-625nm	650-800nm
Optional Emission Filters		500-521nm or 500-532nm	565-595nm	
Standard Absorption Filters	561nm ShortPass	488nm Bandpass or 561nm ShortPass	561nm ShortPass	633nm Bandpass

### **Configuration C: 405, 488, 594, 633:**

LASER LINES	405nm	488nm	594nm	633nm
Laser Type	Diode	DPSS	DPSS	HeNe
Standard Emission Filters	425-455nm	515-545nm	565-595nm	650-800nm
Optional Emission Filters		500-530nm	605-625nm	
Standard Absorption Filters	500nm ShortPass	488nm Bandpass or 500nm ShortPass	594nm Longpass	594nm Longpass

### **Configuration D: 405, 488, 532, 594:**

LASER LINES	405nm	488nm	532nm	594nm
Laser Type	Diode	DPSS	DPSS	DPSS
Standard Emission Filters	425-455nm	500-521nm	545-575nm	610-800nm
Optional Emission Filters		500-530nm	565-595nm	650-800nm
Standard Absorption Filters	532nm ShortPass	488nm Bandpass or 532nm ShortPass	532nm ShortPass	594nm Bandpass

To achieve this expansion of available laser lines within the system, the following changes will be made to the system:

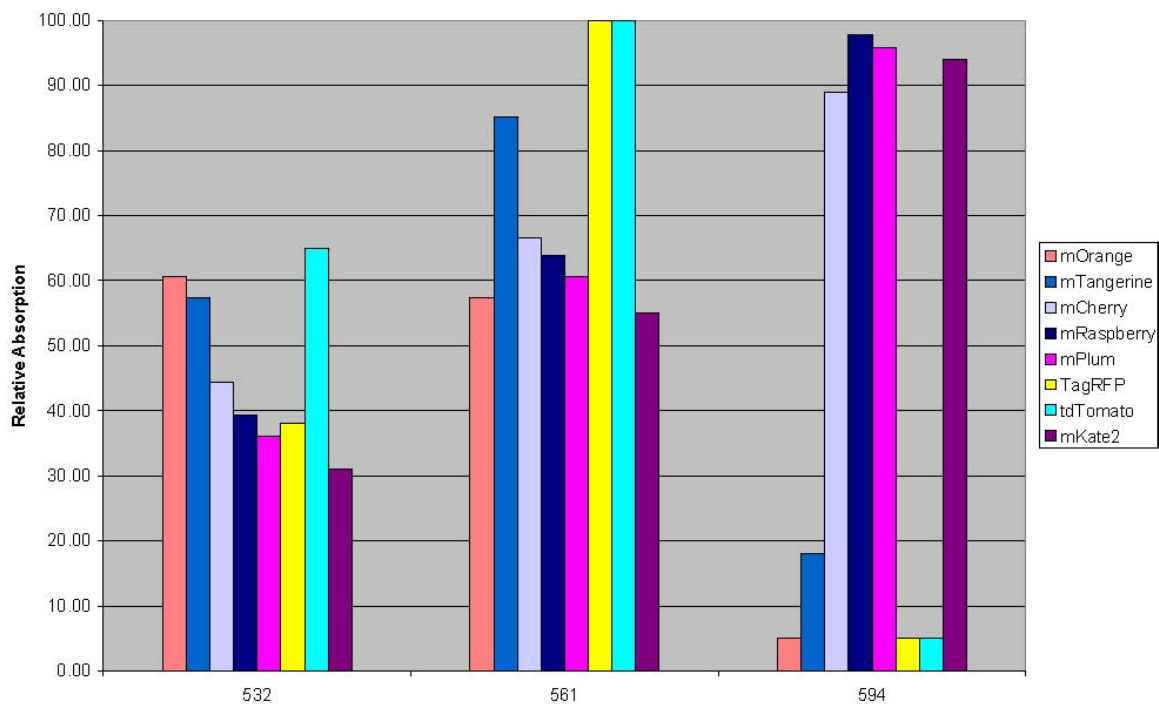
- Replacement of all gas lasers (with the exception of 633nm HeNe) with solid-state lasers. (A good way to replace your old lasers!)
- Improved design of the main dichroic filter, allowing for detection of wider emission spectral bands between the laser lines within the system
- New optics and mounting hardware
- Upgraded software

To take advantage of the increase in the number of laser lines included in the system, the following design changes have been implemented:

- Standard emission filter cubes for the various configurations have been reformulated to allow efficient detection of emission bands located between the excitation laser lines. This provides users with the flexibility to utilize various combinations of laser lines and emission bands in single- or multiple-pass scanning.
- Filtering of absorption and forward scatter detection channels has been extended to enable users to detect the effect of chromatic stains and sample morphology on each laser line. These attributes can be measured in single- or multiple-pass scanning, without the need for user intervention.

The graph below provides a more detailed view of the relative excitation efficiencies of many fluorescent proteins with the three additional laser lines available with The Fourth-Laser Upgrade Option:

**Orange and Red FPs vs. Possible Excitation Laser Lines**





## Fourth-Laser Upgrade Ordering Information

Product number	Laser combination	Upgrade Kit Content
250-5421-000	405-488-532-633	Addition of a 532nm laser allowing expanded dye utilization. Upgrade contains: <ul style="list-style-type: none"> <li>• New 532nm diode pumped solid state laser;</li> <li>• Replacement of existing Argon-ion 488nm laser with a 488nm diode pumped solid state laser;</li> <li>• Replacement of a Power Technology 405nm laser with a 405nm solid state "cube" laser;</li> <li>• GFP filter cube drawer (500-521nm);</li> <li>• Yellow filter cube drawer (550-600nm);</li> <li>• Replacement of main dichroic filter with an optimized main polychroic filter</li> <li>• Replacement of short pass filters in both PD filter wheels to allow detection of 532nm laser absorption/forward scatter</li> <li>• Optics and Mounting hardware;</li> <li>• 4-laser enabling software upgrade</li> </ul>
250-5431-000	405-488-561-633	Addition of a 561nm laser allowing expanded dye utilization. Upgrade contains: <ul style="list-style-type: none"> <li>• New 561nm diode pumped solid state laser;</li> <li>• Replacement of existing Argon-ion 488nm laser with a 488nm diode pumped solid state laser;</li> <li>• Replacement of a Power Technology 405nm laser with a 405nm solid state "cube" laser;</li> <li>• Red2 filter cube drawer (575-625nm);</li> <li>• Replacement of main dichroic filter with an optimized main polychroic filter</li> <li>• Replacement of short pass filters in both PD filter wheels to allow detection of 561nm laser absorption/forward scatter</li> <li>• Optics and Mounting hardware;</li> <li>• 4-laser enabling software upgrade</li> </ul>
250-5441-000	405-488-594-633	Addition of a 594nm laser allowing expanded dye utilization. Upgrade contains: <ul style="list-style-type: none"> <li>• New 594nm diode pumped solid state laser;</li> <li>• Replacement of existing Argon-ion 488nm laser with a 488nm diode pumped solid state laser;</li> <li>• Replacement of a Power Technology 405nm laser with a 405nm solid state "cube" laser;</li> <li>• Replacement of main dichroic filter with an optimized main polychroic filter</li> <li>• Replacement of appropriate filters in both PD filter wheels to allow detection of 594nm laser absorption/forward scatter</li> <li>• Optics and Mounting hardware;</li> <li>• 4-laser enabling software upgrade</li> </ul>
250-5451-000	405-488-532-594	Addition of 532nm and 594nm lasers allowing expanded dye utilization. Upgrade contains: <ul style="list-style-type: none"> <li>• New 532nm diode pumped solid state laser;</li> <li>• New 594nm diode pumped solid state laser;</li> <li>• Replacement of existing Argon-ion 488nm laser with a 488nm diode pumped solid state laser;</li> <li>• replacement of a Power Technology 405nm laser with a 405nm solid state "cube" laser;</li> <li>• GFP filter cube drawer (500-521nm);</li> <li>• Yellow2 filter cube drawer (545-575nm);</li> <li>• LongRed2 filter cube drawer (610-800nm);</li> <li>• Replacement of main dichroic filter with an optimized main polychroic filter</li> <li>• Replacement of short pass filters in both PD filter wheels to allow detection of 532nm laser absorption/forward scatter</li> <li>• Replacement of 633nm filters in both PD filter wheels with 594nm longpass filters;</li> <li>• Optics and Mounting hardware;</li> <li>• 4-laser enabling software upgrade</li> </ul>

For additional information please contact Technical Support at 800-840-1303, or email [techsupport@compucyte.com](mailto:techsupport@compucyte.com)