

Solid-State Erbium Laser Surgical Cutting Probe

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Technology description

Summary

The present system developed by Vanderbilt researchers provides a combination of a base laser pump connected to a laser surgical probe via a connection assembly. The surgical probe has a disposable tip wherein the Er:YAG lasing occurs. This system is useful in laser surgeries involving high precision and appropriate power levels. In particular, intraocular surgeries could benefit from the use of such a system.

Description

Previous work has established that Er:YAG laser at 2.94 micrometer wavelength is the best for coupling with water-laden tissue. Thus, for precise, delicate surgery, e.g., intra-ocular surgery, it is desirable to use this wavelength. However, its applicability has thus far been limited by the fiber delivery systems. In the present technology this limitation has been overcome by physically decoupling the energy delivery unit (base unit) and the lasing head (probe). The two units are connected by an appropriate, flexible assembly. The probe tip is made disposable, and the lasing head lies immediately to its posterior. Vanderbilt currently has a prototype system and would like to discuss the results obtained to date with a potential commercialization partner.

Competitive Analysis

There does not appear to be any other system currently available that addresses the demands of laser probes for high precision surgery in such an elegant fashion.

Application area

This technology uses commercially available components in a unique manner that permits the required combination of:

- Correct laser wavelength
- Desired power level
- Flexibility of the hand-held probe
- Low collateral tissue damage

Institution

[Vanderbilt University](#)

Inventors

[Jin-Hui Shen](#)

Research Assistant Professor

Vanderbilt Eye Institute

联系我们



叶先生

电话 : 021-65679356

手机 : 13414935137

邮箱 : yeyingsheng@zf-ym.com