INO
CHALLENGING LIGHT
FOR OUR PARTNERS

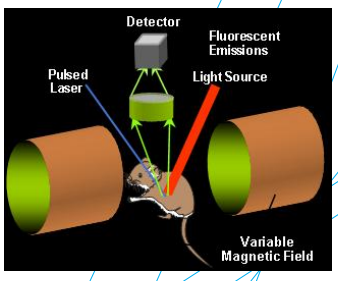
PHOTODYNAMIC THERAPY

INO is a world-class center of expertise in industrial applications for optics and photonics and is a world leading technology developer and provider of biophotonics solutions.

INO is developing an apparatus and methods for elucidating reaction dynamics of photoreactive compounds from optical signals affected by an external magnetic field during photodynamic therapy.

THE PROBLEM

During photodynamic therapy (PDT) of cancer treatment, a photosensitive drug is introduced into the body and activated by light. At the present time, there is no in vivo real-time means of determining drug efficiency or in situ monitoring for treatment.



INO'S SOLUTION

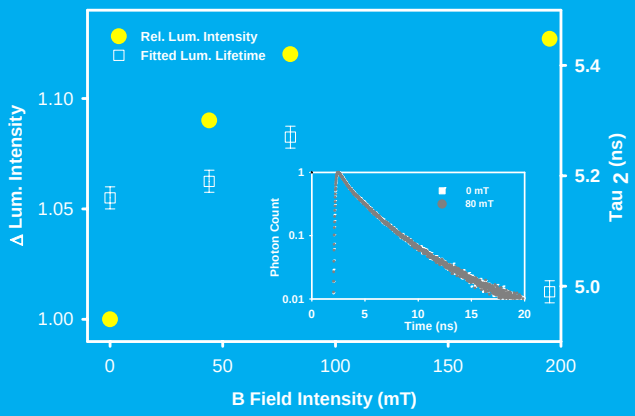
INO has developed a technology platform (patent pending) using magnetic fields to induce changes in the time resolved luminescence characteristics of photosensitizer compounds during photodynamic therapy. These changes can be correlated to reaction dynamics and thus the production of energetic forms of oxygen. It is known that the kinetics of planar metallopthalocyanine compounds (the same chemical family as PDT) are affected by magnetic fields. INO's approach in determining drug efficiency or appropriate light intensity for cancer treatment is to measure these changes by fluorescence and luminescence.

PROOF OF CONCEPT

The magneto field effects on PDT processes have been demonstrated using custom designed porphyrin drugs.

INO's approach will allow pharmaceutical and biotech companies to better understand the pharmacokinetic behavior of drugs in development as well as permitting real time assessment of photodynamic therapeutic treatment.

MAGNETIC FIELD EFFECTS ON PHOTOSENSITIZATION



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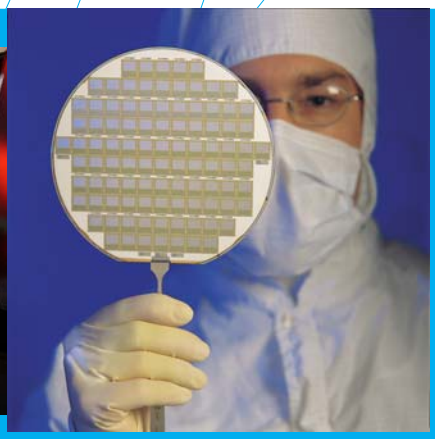
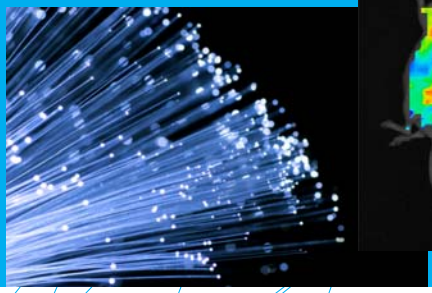
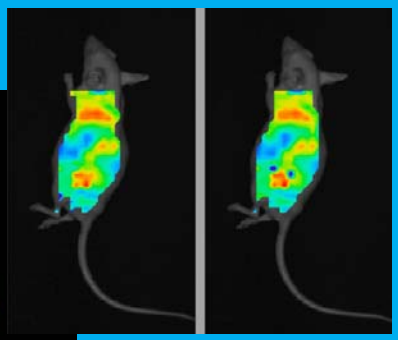
BIOPHOTONICS

INO is a world-class R&D center specializing in optics and photonics with over a decade of success in developing innovative biophotonics solutions. INO harnesses the full power of existing technologies and develops new ones where necessary to provide its clients with unique solutions to their problems from concept to short-run production.

INO has successfully overcome the highly scattering nature of biological media, as evidenced by projects such as a near-infrared imaging system for optical mammography. Our biophotonics program has grown from this solid base in diffusion techniques to encompass other bio-spectroscopy techniques such as fluorescence and polarization.







OUR STRENGTHS

. Expertise in:
- -Biospectroscopy
- -Microfabrication
- -Specialty optical fibers
- -Micromachining
- -Tissue-simulating phantoms

. Cutting-edge facilities

. Containment level II laboratory

SCATTERING PHANTOM

PRM-080055

LEADING AHEAD

Harnessing the interaction of light with biological matter is not a new idea. INO recognized early on that bringing various fields together would enable the development of biophotonics solutions to concrete problems in the agrifood, health, and environmental sectors. This recognition along with advances in optical technologies has resulted in the continued growth of biophotonics applications.