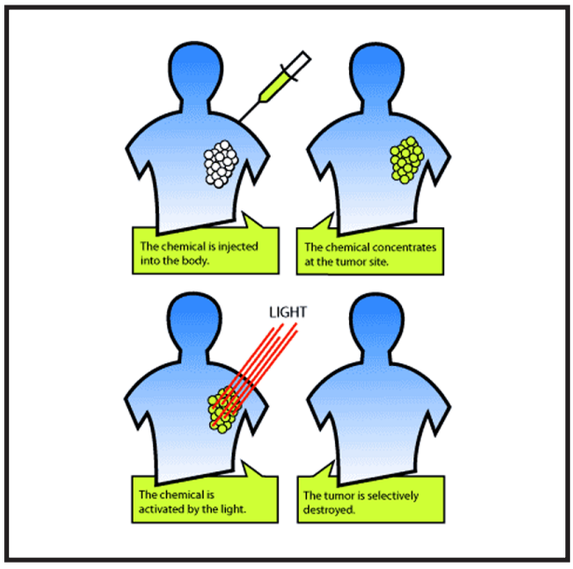
NEW CHEMICAL ENTITIES WITH POTENTIAL APPLICATIONS IN PHOTODYNAMIC THERAPY

TECHNOLOGY OVERVIEW

Republic Polytechnic (RP) has developed a series of novel compounds that show photodynamic cytotoxic activity against cancer cells, and which may have applications in other clinical areas.

Prepared by simple, fast and efficient synthetic routes, these compounds have been characterised using different spectroscopic and analytical techniques. They are soluble in aqueous media, show strong DNA binding ability and can cleave DNA effectively when irradiated by visible light (i.e. they are photodynamic).

Photodynamic therapy (PDT) is a form of photo chemotherapy that uses photodynamic compounds, or photosensitisers, to kill cancer cells only when irradiated by low-energy laser light of specific wavelengths. The process works by converting oxygen in body tissues to free radicals, which are highly toxic and result in cell death. Only tissue irradiated by the laser is affected by this treatment, so healthy tissues can be preserved. The main advantages of PDT include reduced side effects, shorter treatment times and less complicated procedures.



POTENTIAL APPLICATIONS

The novel chemical compounds can potentially be used for:

- Photodynamic therapy of cancers (e.g. face, head, neck, melanoma, breast, and prostate)
- Treatment of macular degeneration
- Treatment of skin disorders related to rapid cell growth (e.g. psoriasis)
- Treatment of human papillomavirus (HPV) warts
- Cosmetic applications (e.g. treatment of varicose veins)

MARKET OPPORTUNITIES

The core target market for these chemical compounds is the PDT drugs market, which has seen significant growth in recent years. In 2008, the PDT drugs market amounted to approximately $225 million worldwide. In 2012, the global market is expected to reach almost $800 million. In addition, considerable potential exists for the application of these compounds in the treatment of skin disorders and other areas, as noted above.

COMMERCIALISATION

A Patent Cooperation Treaty (PCT) application has been filed for eight novel compounds. Further research is currently ongoing to improve and enhance the properties of these compounds. They are also being tested on different cancer cell lines.

The novel compounds are available for further testing under fixed-term evaluation licenses with external organisations and companies.

CONTACT DETAILS

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Looking for an open innovation partner? Contact Republic Polytechnic today!

Whether you are looking for new ideas to improve your current business flow, need access to research and technology expertise, or require facilities to bring your innovative ideas to life, we may be the partner for you.

At Republic Polytechnic (RP), we bridge the gap between knowledge and application by facilitating information and technology transfer to industry partners. Taking a holistic approach, our team of experts can assess your business needs, provide consultancy, conduct feasibility studies, and render support to help increase your company's competitiveness.

Facilities and Equipment
RP is home to state-of-the-art facilities and the latest technology, which are on par with industry standards. You can access these facilities by collaborating with RP on joint projects or through facility and equipment rentals.

Research and Development
Transform your ideas into reality. RP's multidisciplinary applied R&D centres can work with you in many different ways, including exploiting new technologies, developing new products and streamlining processes.

Current Opportunities for Collaboration and Commercialisation

- 3G-based In-vehicle Video Security System
- Biodiesel Process for Fatty Acids and Waste Oils
- Cloud-based Logistics Tracking
- Enhanced Silk Thread and Fabric for High-performance Applications
- Innovative Single-tube Multiplex Diagnostic Platform for Dengue and Chikungunya Viruses
- Micro-machined Freestanding Tactile Sensors for Minimally Invasive Surgical Tools
- New Chemical Entities with Potential Applications in Photodynamic Therapy
- Remotely Triggered Multilingual Wireless Audio Commentary System
- Visual Sentiment Analytics for Social Media Analysis
- Wireless Proximity Sensing for Safety and Security Applications

For more details, visit **www.rp.edu.sg/tdc**, or email us at **enquiry_tdc@rp.edu.sg.**