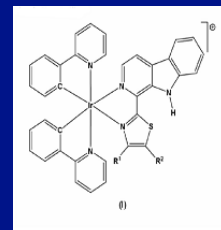


# TECHNOLOGY OFFER

## New iridium (III) complexes applied as photocatalysts and cancer treatment agents



The iridium (III) complexes have been synthesized with an important activity as photocatalysts or photosensitizers, which absorb the light energy and transfer it to oxygen for the production of reactive oxygen species (ROS). They may act as very effective and environmentally sustainable oxidants with applications as photocatalysts in chemical synthesis and as therapeutical photosensitizers, particularly with antitumor photodynamic therapy.

### DESCRIPTION OF THE TECHNOLOGY

A synthetic process has been synthesized to obtain cationic iridium (III) complexes in which the iridium atom combines with two 2-Phenylpyridine ligands and beta-carboline derived ligand. Moreover, a *one-pot* procedure has been developed for the thiocyanation of indoles at the C3 position from indolines, using the iridium (III) complexes as photocatalysts. Besides that, iridium (III) complexes have been established as photosensitizers for photodynamic therapy against tumour cellules.

### APPLICATION AND OBJECTIVE MARKET

The potential applications of new iridium (III) complexes are:

- Photooxidation reactions in organic synthesis.
- Photocatalysts for the thiocyanation of indoles and indolines.
- Photosensitizers in photodynamic cancer therapy.
- New cancer treatment agents combined with radiotherapy, chemotherapy or targeted therapies.

### COMPETITIVE ADVANTAGES

- High dissolution stability of iridium (III) complexes.
- Photostability under different light sources.
- High-performing and efficient photocatalysis, by optimal use of low energy light sources.
- Economic synthesis process of thiocyanated indoles that avoids isolation and purification of chemical intermediates.
- High photocytotoxicity of the iridium (III) complexes in cancer treatments.

**TIME-TO-MARKET**  
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