LICENSING OPPORTUNITY

Université de Neuchâtel unine

New organoruthenium complexes for cancer therapy

The University of Neuchâtel, Switzerland, proposes the following technology for licensing

Keywords

- Arene ruthenium
- Sulfur-containing ligands
- Cationic dinuclear complexes
- Cancer therapy

Patent status

"Dinuclear complexes"
International patent application
PCT/EP2011/062396 (July 19, 2011)
Applicant: University of Neuchâtel (UniNE)

Description of the Invention

❑ Background

Ruthenium complexes sometimes show similar of even better anticancer activity than platinum complexes without having the same general toxicity

❑ Technology

A family of cationic dinuclear arene ruthenium complexes containing thiolato bridges, very easily prepared and isolated as the chloride salts, offering facile functionalization to customize various derivatives with defined properties.

❑ Development status

- o Established method of synthesis (fast, low-cost, reproducible, scalable, high yield)
- o Compounds highly cytotoxic in tumor cells with IC_{50} < μM, often in the nanomolar range
- o In vivo experiments (anti-tumor activity and toxicity) ongoing

❑ Main advantages / innovative features

- ✓ High cytotoxic efficacy due to the dinuclear nature of the ruthenium complexes
- ✓ Well-balanced lipophilicity (arene ligands) and hydrophilicity (ionic nature)
- ✓ Good solubility (chloride salts)
- ✓ Good uptake by cancer cells
- ✓ Fewer side effects of ruthenium as compared to platinum compounds
- ✓ Reproducibility and low-cost of synthesis
- ✓ Expandable family of compounds, can be used to treat a wide variety of diseases

❑ Potential applications

- ➢ Treatment of cancer
- ➢ Treatment of inflammation and immune disorders

❑ References

- M. Gras, B. Therrien, G. Süss-Fink, O. Zava, P. J. Dyson, « Thiophenolato-bridged dinuclear arene ruthenium complexes: a new family of highly cytotoxic anticancer agents » Dalton Transactions, 2010, *39*, 10305-10313.

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