

Methylene blue - phosphoramidite probes

Health / Environment / Biosensors / Food



REFERENCE	ELECTROPROBES [D00795]
KEYWORDS	BIOSENSORS / NUCLEIC ACIDS / PROBES / ELECTROCHEMISTRY



APPLICATIONS

- Oligonucleotidic probe for integration in electrochemical biosensors, for various types of analyses :
 - Health analyses : *in vitro* diagnosis, point of care diagnosis
 - Environment analyses
 - Quality control in food industry



TARGET MARKETS

- Sensor component manufacturers
- Sensors integrators

Technology readiness level

TRL 4



INTELLECTUAL PROPERTY

Granted patent



LABORATOIRE

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DESCRIPTION

New methylene blue-based electrochemical probes, including a phosphoramidite function, have been designed for integration into oligonucleotides of interest (DNA, RNA, aptamers). Fully compatible with DNA solid support synthesis conditions, these labels can be integrated at the end and/or at any position of the oligonucleotidic chain, allowing an important number of labels to be incorporated into a single nucleic acid chain. Regarding ferrocene classical probes, this new electrochemical probe is more sensitive and more stable towards pH, oxidation.

COMPETITIVE ADVANTAGES

- Better performance vs ferrocene probe: multiple incorporation, either end-chain or inside a single oligonucleotidic chain
- Methylene blue probe made compatible with solid support synthesis basic conditions
- Robust probe: stability towards oxidative conditions
- Electrochemical sensitivity: transfer of twice as much electrons by oxidation wave
- Multimodal probe: electrochemistry, colorimetry
- DNA intercalating agent

DEVELOPMENT STATUS

- Proof of concept validated with a gold electrode biosensor
- Know-how relating to synthesis, purification and grafting of probes.

PARTNERSHIP

PULSALYS is looking for industrial partners interested in using this technology through a licence agreement, and/or for co-development partners.



OUR OPPORTUNITIES

<https://www.pulsalys.fr/our-projects/>

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