

Modified electrode for ultrasensitive detection of HPV-16 virus protein

About the invention

The invention relates to a modified gold-based electrode designed for the detection of recombinant human papillomavirus type 16 (HPV-16) protein. The electrode functions as a biosensor enabling ultrasensitive detection using electrochemical techniques.

The electrode surface is functionalized with a chemical linker and monoclonal anti-HPV-16 antibodies, ensuring high selectivity and sensitivity. The developed biosensor allows rapid, low-cost analysis with measurement times reduced to minutes.

The solution may serve as an alternative or complementary diagnostic tool to molecular methods, enabling early detection of HPV-16 infections associated with cervical cancer and head and neck cancers.

Technology readiness level

TRL 4 - Technology validated in laboratory conditions



Authors

University of Gdańsk

Prof. Paweł Niedziąłkowski

Prof. Eng. Tadeusz Ossowski

Gdańsk University of Technology

Prof. Eng. Jacek Ryl

Medical University of Gdańsk

PhD Dmitry Tretiakow

Prof. Andrzej Tadeusz Skorek

IP protection

The invention is protected by a patent application in the Polish Patent Office under the number: **P.444335**.

Applications

- HPV-16 infection diagnostics,
- Early cancer biomarker detection,
- Point-of-care biosensing platforms.

Possible cooperation

- Technology licensing,
- Joint R&D and diagnostic validation,
- Integration with diagnostic platforms..