

## METHOD OF ESTABLISHING A SET OF BIOMARKERS FOR DIAGNOSIS OR PROGNOSIS IN CERVICAL CANCER PATIENTS

Authors: Codrici Elena<sup>1</sup>, Tanase Cristiana<sup>1</sup>, Albulescu Radu Nicolae Aurel<sup>1</sup>, Stănculescu Ruxandra<sup>1</sup>, Popescu Ionela Daniela<sup>1</sup>, Mihai Simona<sup>1</sup>, Neagu Ana-Iulia<sup>1</sup>, Necula Laura Georgiana<sup>1</sup>, Mambet Cristina<sup>1</sup>

*"Victor Babeș" National Institute for Research and Development in the Field of Pathology and Biomedical Sciences, Bucharest*

RO130591B1/  
28.10.2022

The invention relates to a method of identifying a set of biomarkers useful in the diagnosis and prognosis of cervical cancer. According to the invention, the method comprises the analysis of the proteomic profile in a tumoral-pathological tissue in relation with a peritumoral-normal tissue from which a set of protein biomarkers was identified, where the molecular weight varies in the range of 15...50 kDa, with pI 5.5...7.5, namely: CDK4 with a molecular weight of 33 kDa and pI 6.66, cycline B1 with a molecular weight of 48 kDa and pI 7.1, p16 with a molecular weight of 16 kDa and pI 5.5 intended to be used as an instrument of prognosis and diagnosis for cervical cancer at the molecular level.

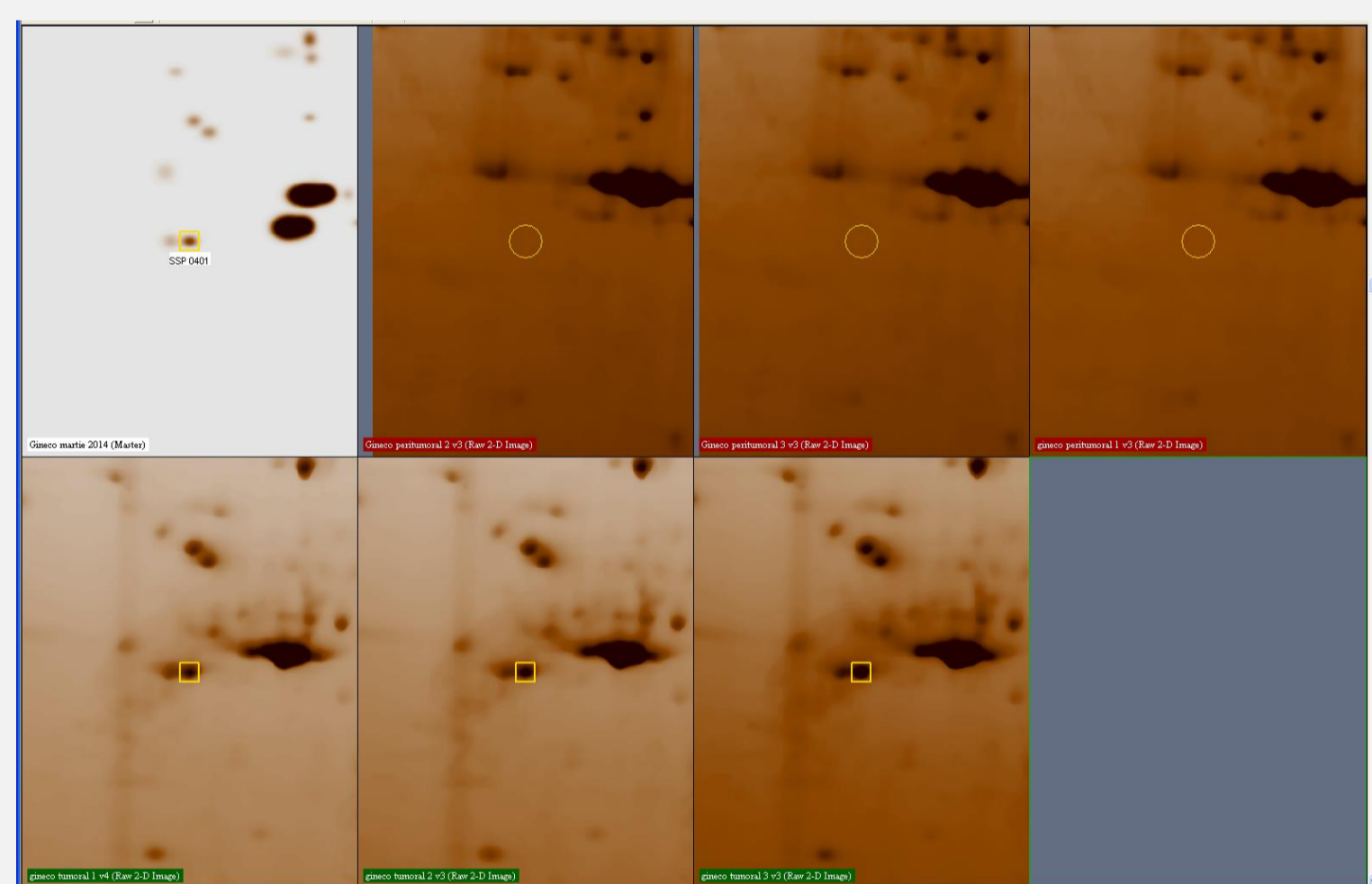


Figure 1. Protein identified at molecular weight 48 kDa and pI 7.1.

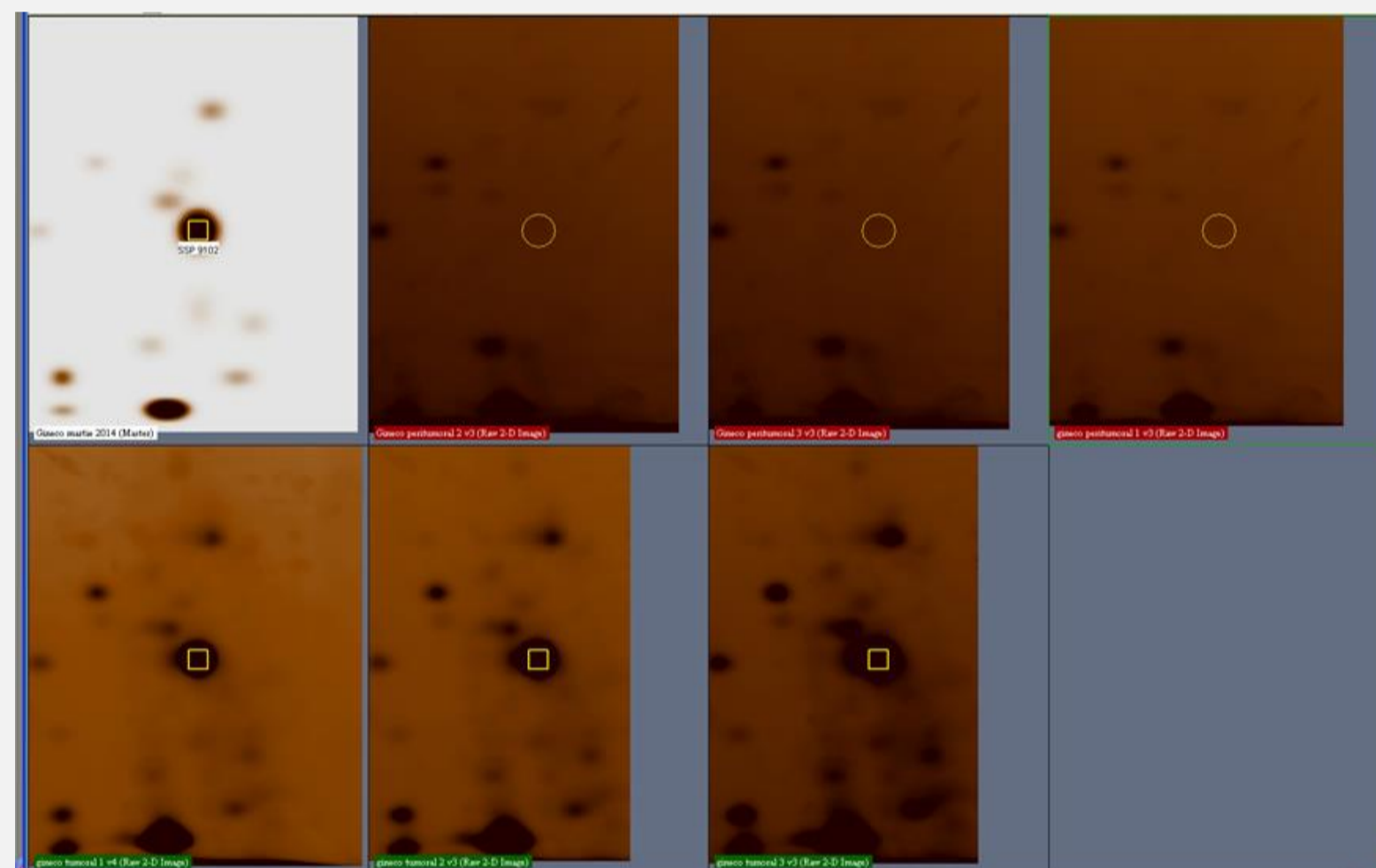


Figure 2. Protein identified at molecular weight 16 kDa and pI 5.5.

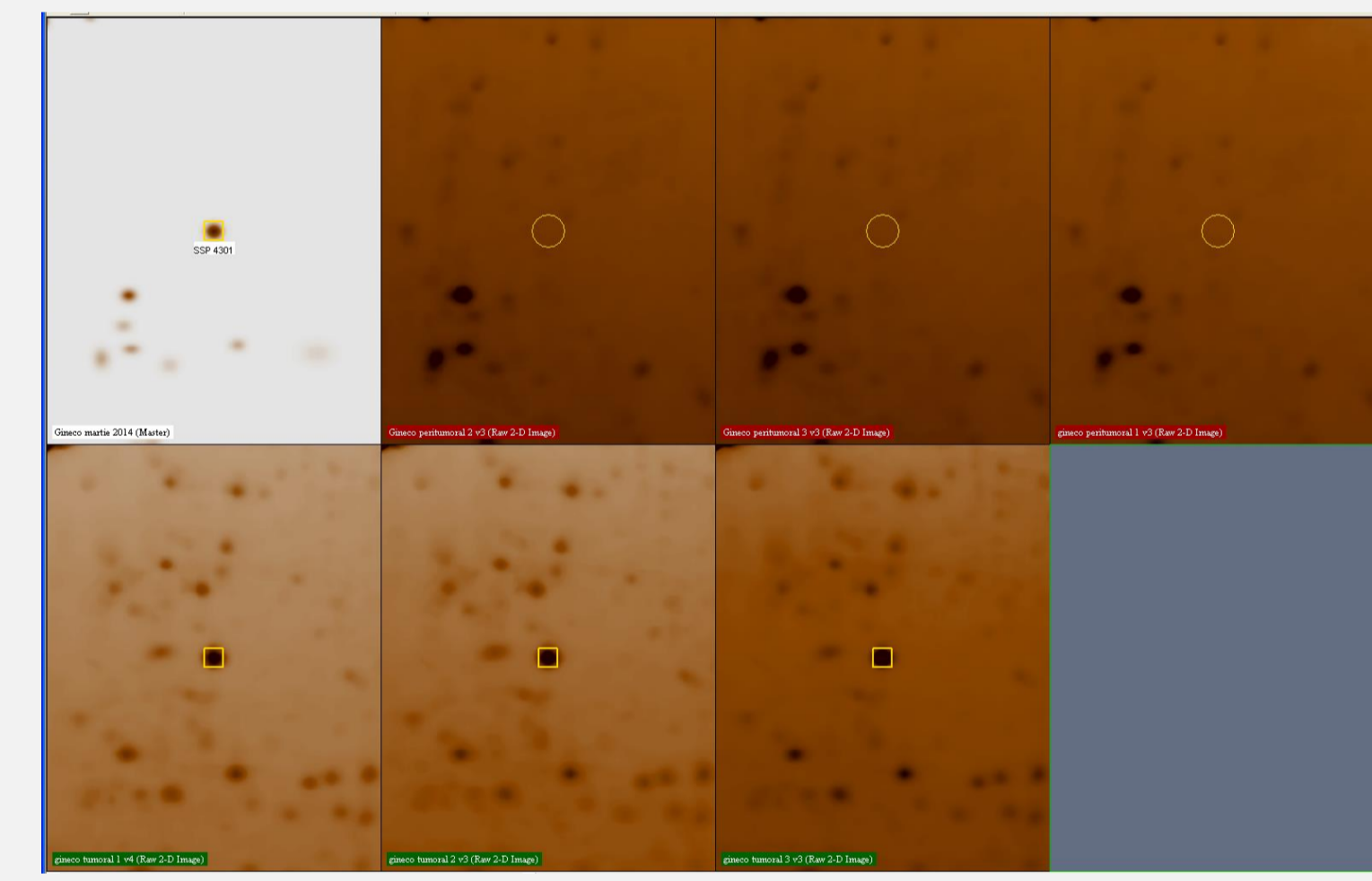


Figure 3. Protein identified at molecular weight 33 kDa and pI 6.55.

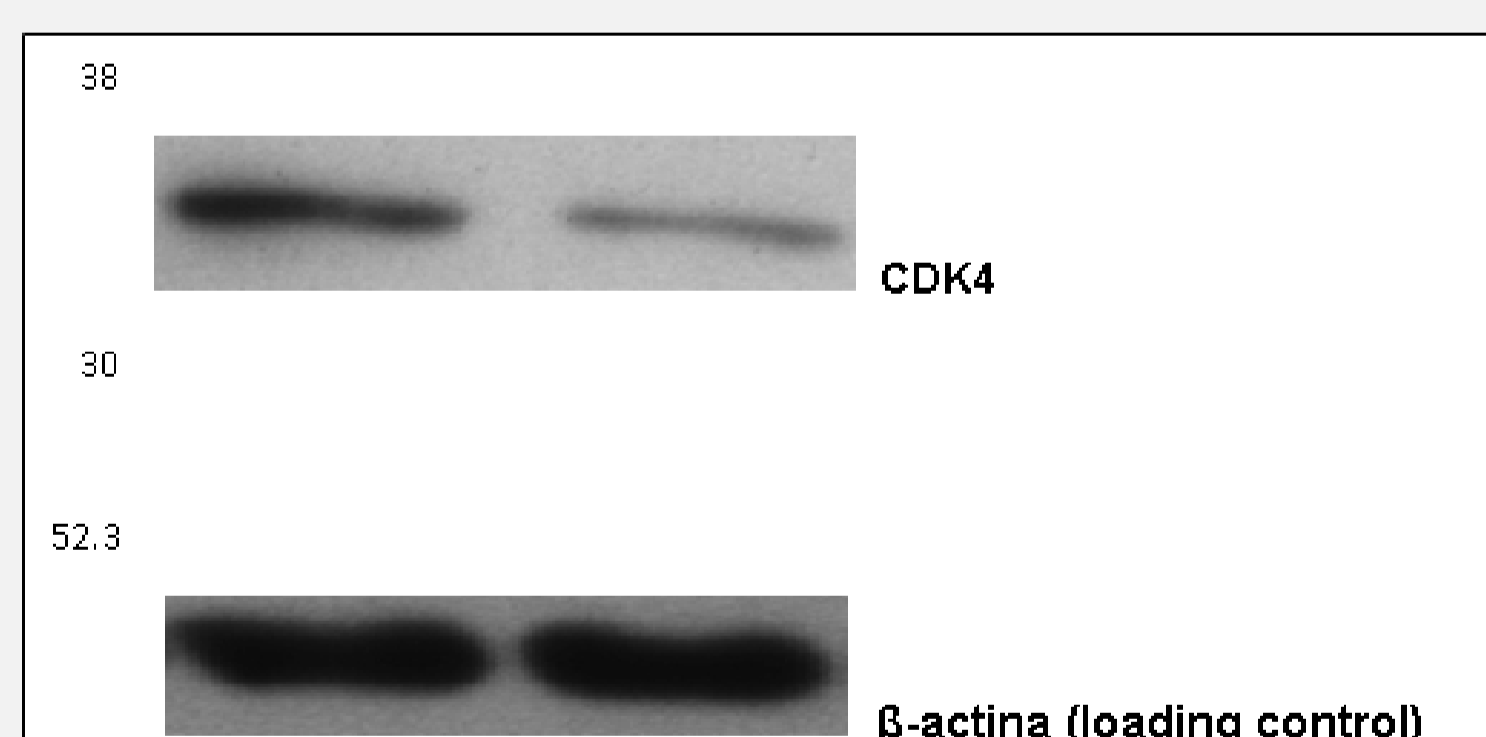


Figure 4. CDK4 protein overexpression in a cervical carcinoma with HPV infection versus peritumoral tissue.

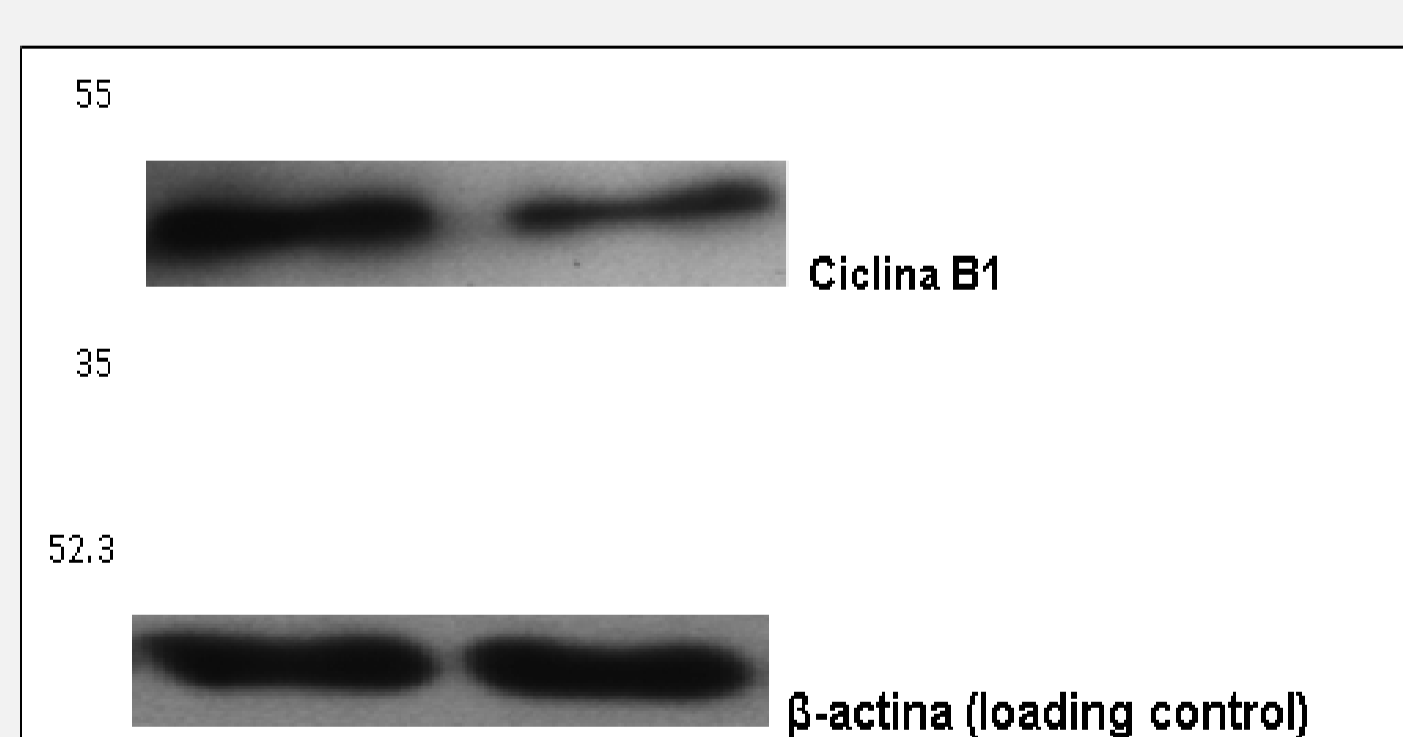


Figure 5. Cyclin B1 overexpression in a cervical carcinoma, with HPV infection versus peritumoral tissue.

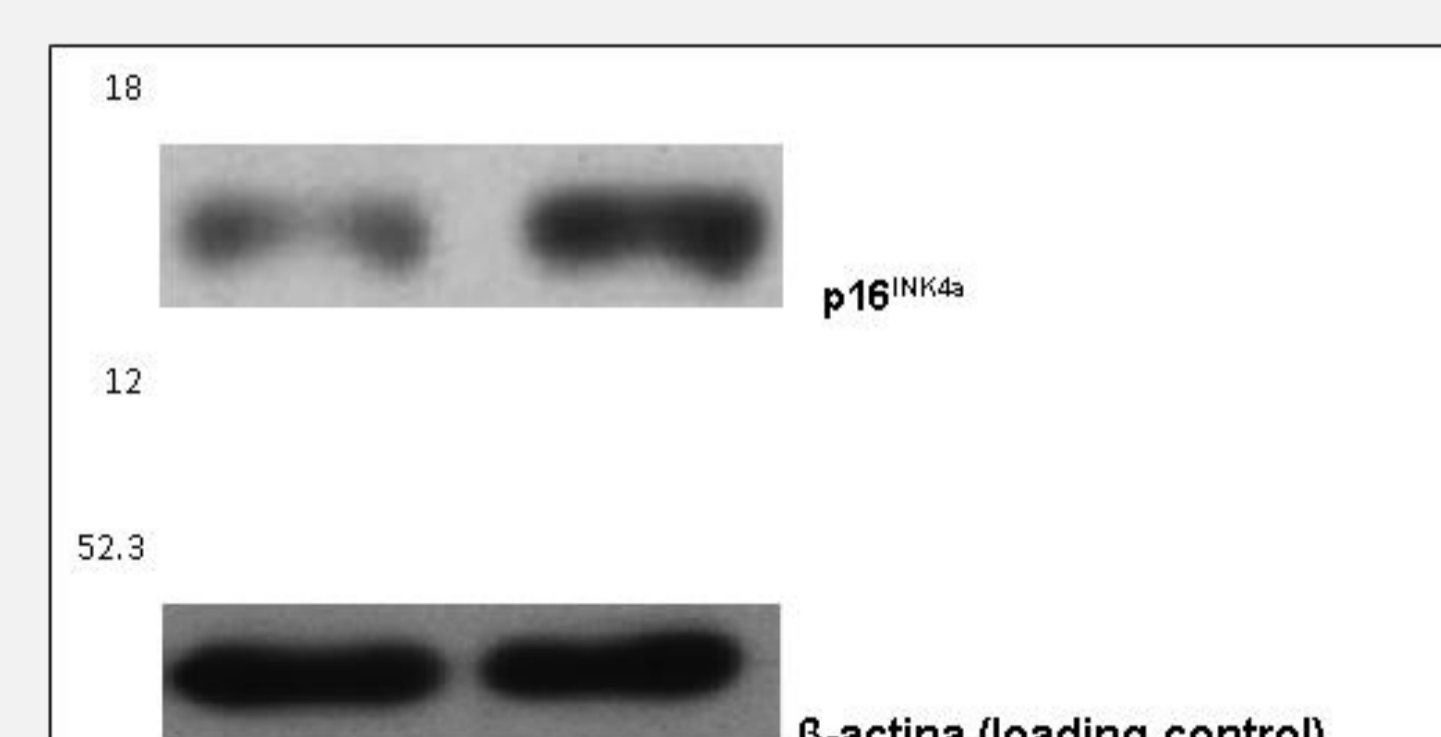


Figure 6. Overexpression of p16INK4a protein in a cervical carcinoma, with HPV infection versus peritumoral tissue.

### Fields of application: Medicine

- the identification of a set of biomarkers not yet addressed in current medical practice, whose variation in expression is an indicator for pathological changes in the cervix.
- creating a classification algorithm based on the combination of molecular signature patterns (biomarker set); this classification algorithm is applicable for completing the diagnosis and evaluating the prognosis in cervical cancer.