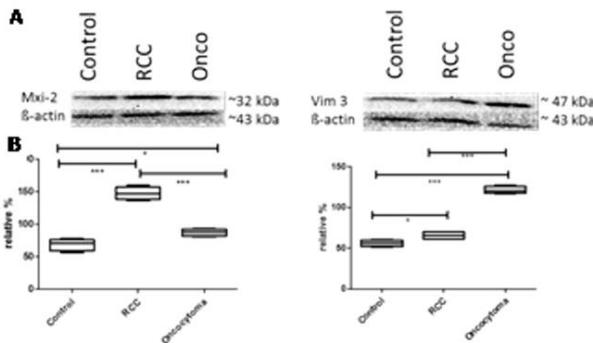


Vim3 and Mxi-2 Antibody

Liquid biopsy: preoperative marker for diagnosis and differentiation of benign and malignant renal carcinoma

Invention

Kidney cancer is classified as malignant tumors originating from different renal cells with several subtypes. The cells of these subtypes can mimic a benign kidney tumor, called oncocytoma. The unequivocal differentiation is essential for planning the adequate operative procedure and the patient follow-up monitoring (which is not necessary for oncocytoma). To date, it is not possible to reliably differentiate between malignant subtypes and benign kidney tumors by means of the available antibody panel and imaging methods.



A: Western blot analysis of RCC and Oncocytoma urines according to the controls (ctr). All samples were neutralized to the housekeeping gene (β -actin).
B: Densitometric analysis of Western blots from 10 independent experiments. Significant increase of both analyzed protein levels was detectable (** $p < 0.001$)

MAPK p38, namely Mxi-2, which indicates RCC, including all subtypes. Oncocytoma, however, is negative for Mxi-2. Both markers are detectable by means of monoclonal antibodies directed against Vim3 and Mxi-2 in body fluids, such as urine, as well as in tissue. Detection of both markers in urine makes it possible for the first time to provide urologist and oncologist a non-invasive test for a preoperative diagnosis so as to appropriately treat the patient and plan the follow-up.

Commercial Opportunities

The conception of the future product is to offer a two-step test: After recognising a suspicious event on ultrasonography, the resident urologist is able to test the urine of the patient with a test-strip or ELISA which combines both markers. If the kidney tumor is benign (Oncocytoma), Vim3 is detectable. In case of positive Mxi-2 detection, the tumor is malignant (RCC). No staining indicates no kidney tumor is present. After the surgery the result will be confirmed in the removed tumor tissue. The use in cancer screening is also conceivable. On behalf of the University of Cologne, PROVendis offers a patent license as well as a research collaboration with licensing option.

Current Status

The marker Vim3 is currently being validated. The test strip is under development. The ELISA is already working. The validation of the marker Mxi-2 is planned. In case of interest we are pleased to inform you about the patent status.

Relevant Publications

Von Brandenstein, M., et al. (2015) Vimentin 3, the new hope, differentiating RCC versus oncocytoma *Dis. Markers* 368534.

An invention of the University of Cologne.

Competitive Advantages

- Novel approach: markers for non-invasive diagnosis of kidney tumors
- Optimized treatment and follow-up of patients due to an accurate and valid diagnosis and differentiation of benign kidney tumors and malignant renal carcinomas
- Markers also usable for routine medical checkup (persons aged 55 and above)
- Monoclonal antibodies designed for use
- Urine quick test in development

Technology Readiness Level

1 2 3 4 5 6 7 8

Technology demonstrated in relevant environment

Industries

- Diagnostics Industry

Ref. No.

3485 / 4922

Contact

Kordula Kruber

E-Mail: kk@provendis.info

Phone: +49(0)208-94105-30

