New biomarker for uterine cancer discovered

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Researchers at Uppsala University have, together with researchers from Turku and Bergen, discovered a new biomarker which makes it possible to identify women with uterine cancer who have a high risk of recurrence. The findings were recently published in the journal *Gynecologic Oncology*.

Endometrial cancer of the uterus is the most common form of gynecologic cancer in Europe and North America. The treatment primarily consists of removing the uterus and in some cases offering chemotherapy if the risk of recurrence is deemed high.

The current study looks at the amount of protein ASRGL1 present in the tumour cells in uterine cancer. Based on the amount of ASRGL1 the researchers were able to separate women with a negative prognosis and high risk of recurrence from the patients who fared better after their operation. The study was conducted in cooperation between researchers at the universities in Uppsala, Turku and Bergen and is based on samples collected from 500 women who were diagnosed with uterine cancer between the years 1981 and 2007.

The protein ASRGL1 is an enzyme that normally exists in healthy cells of the uterus. The current study shows that patients who had entierly or partially lost ASRGL1 in the tumour cells had a much higher risk of the cancer recurring and dying from the disease, while patients with sustained high levels of ASRGL1 had a much lower risk of recurrence. The study also shows that ASRGL1 is an independent prognostic factor, even after compensating for other risk factors such as tumour stage and

tumour grade.

The researchers hope that analyses of ASRGL1 in time can become a diagnostic tool to identify those women who have a higher risk of recurrence and therefore need more extensive treatment.

'I view the results as a first step towards personal treatment of uterine cancer. Today, 10–15 per cent of the patients suffer recurrences, even though they were considered low risk patients according to classic diagnostics. By using ASRGL1, the chance of identifying such hidden high-risk patients and offer them more aggressive treatment after their operation increases', says Per-Henrik Edqvist, researcher at Uppsala University's Department of Immunology, Genetics and Pathology, and main author of the study.

Further studies are now being planned to investigate whether ASRGL1 also can be used for diagnosing tissue biopsies taken before the operation, to identify patients in need of more extensive surgery.

'Our results are promising, but more research is needed before ASRGL1 can be accepted as a new diagnostic tool in healthcare. But hopefully the process can be speeded up since Swedish biotech company Atlas Antibodies has shown interest in commercialising our findings', says Per-Henrik Edqvist.

The study is a result of the decade-long mapping of human proteins, The Human Protein Atlas project, which was published in the autumn 2014. It was within The Human Protein Atlas project that the expression of the ASRGL1 protein was first mapped in the human body's normal tissues and in different forms of cancer. By searches in the public protein atlas database the researchers were able to identify ASRGL1 as a potential new biomarker.

'The protein atlas project enabled our discovery and our study is an excellent example of how The Human Protein Atlas database can be used by researchers across the world to find interesting leads to follow up on', says Per-Henrik Edqvist.

The study has been published online by the journal *Gynecologic Oncology*.

More information: "Loss of ASRGL1 expression is an independent biomarker for disease-specific survival in endometrioid endometrial carcinoma," *Gynecologic Oncology*, Available online 7 April 2015, ISSN 0090-8258, dx.doi.org/10.1016/j.ygyno.2015.03.055

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