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Genetic changes shown to be important indicators for disease progression in cervical cancer patients

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Cervical cancer patients with specific changes in the cancer genome have a three- or fourfold increased risk of relapse after standard treatment compared to patients without these changes, according to a study by Norwegian researchers published November 13 in the open-access journal *PLoS Genetics*. The research suggests that specific genetic changes are crucial steps in the progression of the disease towards an aggressive and treatment-resistant state.

Cervical cancer is one of the most common malignancies affecting women worldwide and a major cause of cancer-related death. The researchers therefore sought to explore whether these genetic changes could add information to clinical data obtained through standard examination methods, and be used to identify patients who need additional treatment. Previous studies have shown that the cancer cells of cervical cancer patients display numerous genetic changes, but their importance for disease progression and treatment resistance has not been clear.

The authors, led by Heidi Lyng, examined more than 140 patients diagnosed and treated at the Norwegian Radium Hospital. Through the use of screening methods that covered all genes in the human genome, the researchers report as their key finding the discovery of a set of biological processes that are known hallmarks of cancer associated with gains and losses of specific genes. Moreover, they identify novel loci

associated with resistance to chemo- and radiotherapy, and depict the genes involved.

This research represents an important step in understanding the development of cervical cancer, but the authors emphasize that the results need to be validated in independent patient cohorts before they can be considered for use in clinical decision making.

More information: Lando M, Holden M, Bergersen LC, Svendsrud DH, Stokke T, et al. (2009) Gene Dosage, Expression, and Ontology Analysis Identifies Driver Genes in the Carcinogenesis and Chemoradioresistance of Cervical Cancer. PLoS Genet 5(11): e1000719. doi:10.1371/journal.pgen.1000719

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