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Prostate cancer (PCa) is the most common type of male cancer in the Western society. In Sweden approximately 10000 men are diagnosed with the disease annually and today there is no reliable marker that can separate between patients who will have an aggressive type of disease that requires treatment, from the patients who will have a more indolent clinical course and can be left untreated. This further leads to the current problem of over treatment of men with PCa. Hence, there is an urgent need for reliable prognostic markers that can be used at time of diagnosis. The present thesis investigates if the common genetic aberration, the *ERG* rearrangement, could play a role in diagnosis and/or prognosis of PCa. The major findings are that in multifocal PCa, the *ERG* rearranged cancer foci are more prone to metastatic dissemination compared to foci without the *ERG* rearrangement and that patients harboring the *ERG* rearrangement have a faster disease progression leading up to start of hormonal treatment.

The work in this thesis suggests that the *ERG* rearrangement is a sign of a more aggressive type of cancer and that the *ERG* rearrangement has a potential role in PCa clinical diagnosis, but further studies are required to show if the rearrangement also will play a role in prognosis and treatment strategy.

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