

Vasculogenic mimicry in malignant tumors : tumor cells in disguise

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Keywords: angiogenesis, cancer, tumor cell plasticity, vasculogenic mimicry, vasculogenesis

Aggressive tumor cells can obtain the ability to form vascular-like structures that may contribute to blood circulation and/or tumor cell metastasis. This process is referred to as vasculogenic mimicry. This thesis describes our research that was aimed at identifying novel key molecules implicated in this process. By these means, expression of CD44 –an important marker of cancer stem cells – was identified in vasculogenic tumor cells. Also, the importance of perivascular cells in vasculogenic mimicry is described. Although currently applied angiogenesis inhibitors have not proven to be effective against this malignant process, treatment of vasculogenic tumor cells with imatinib (Gleevec®) did hamper their ability to form vascular-like structures. This research increases our knowledge of vasculogenic mimicry and may contribute to the development of clinically more effective treatment strategies against cancer.

Keywords: angiogenese, kanker, tumorcel plasticiteit, vasculogenic mimicry, vasculogenese

Agressieve tumorcellen blijken de mogelijkheid te hebben om vasculogene structuren te vormen die mogelijk kunnen bijdragen aan de circulatie van bloed en/of de metastasering van tumorcellen. Dit proces wordt vasculogenic mimicry genoemd. Dit proefschrift beschrijft ons onderzoek dat gericht was op het identificeren van nieuwe moleculen die betrokken zijn bij dit proces. Zo hebben wij aangetoond dat CD44 - een belangrijke marker van kankerstemcellen - tot expressie werd gebracht door vasculogene tumorcellen. Daarnaast is het belang van perivasculaire cellen tijdens vasculogenic mimicry beschreven. Hoewel angiogeneseremmers tot op heden nog niet effectief dit maligne proces hebben kunnen bestrijden, bleek behandeling van vasculogene tumorcellen met imatinib (Gleevec®) hun capaciteit tot het vormen van vasculogene structuren wel te belemmeren. Dit onderzoek vergroot onze kennis over vasculogenic mimicry en kan mogelijk bijdragen aan de ontwikkeling van behandelmethoden met een verhoogde klinische effectiviteit tegen kanker.