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New target for the fight against cancer as a result of excessive blood vessel formation

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New blood vessel formation (angiogenesis) stimulates the growth of cancer and other diseases. Anti-angiogenic inhibitors slow down cancer growth by disrupting the blood supply to the tumor. To date, the success of these treatments is limited by resistance, poor efficiency and harmful side effects. In the leading scientific journal *Cell*, Peter Carmeliet (VIB-KU Leuven) and his team reported that sugar metabolism (a process that we call glycolysis) also plays an essential role in the formation of new blood vessels. These totally revolutionary insights open up many new therapeutic opportunities for the treatment of cancer and diseases as a result of excessive blood vessel formation.

Every growing cell in our body is provided with oxygen and nutrients via our blood vessels.

Blood vessels are formed by endothelial cells which line the inside wall of the vessel. These cells require energy to be able to form new blood vessels. However, it was not known how these cells produced the required energy and it was never considered to inhibit the energy production process in order to block angiogenesis.

Under the guidance of Peter Carmeliet, a team consisting of Katrien De Bock, Maria Georgiadou and Sandra Schoors discovered that glycolysis is the most important mechanism for endothelial cells to supply energy for blood vessel formation. Peter Carmeliet and his team demonstrated that endothelial cells can be paralyzed by blocking glycolysis and consequently stop to form blood vessels. This is the first evidence that

starvation of endothelial cells could offer new therapeutic opportunities for the treatment of excessive angiogenesis in diseases (like cancer).

Peter Carmeliet: "Our discovery opens up a whole new domain for inhibition of angiogenesis in various diseases such as cancer. Endothelial cells need nutrients and energy for growth and if you take away their energy, you can prevent them from forming new blood vessels".

Provided by VIB (the Flanders Institute for Biotechnology)

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