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## **Mathematical model of endothelial cell proliferation and maturation**

Blood vessel sprouting (angiogenesis) is one of the hallmarks of cancer. Better quantitative understanding of this process would allow more effective antiangiogenic therapies to be developed. It has been hypothesised that not only the number of endothelial cells, but also the quality of the vasculature play an important role in how chemo- and radiotherapies are delivered to tumour site. Hence in this study a minimally-parametrised mathematical model of endothelial cell proliferation and maturation is developed. Endothelial cells are subdivided into two compartments – mature and immature (or proliferating). The cells are assumed to undergo a self-mediated maturation, while loss of blood vessel quality is mediated by an external growth factor (here VEGF). The model is fitted to experimental data. The model shows how inhibition of VEGF results in better quality vasculature and slower proliferation.

### **References**

- [1] P. Bajger, M. Bodzioch, *Mathematical model of endothelial cell proliferation and maturation*, *Mathematica Applicanda* 46(1) (2018), 3–12, doi=10.14708/ma.v46i1.6383.