

New strategy to accelerate blood vessel maturation has therapeutic potentials for ischemic diseases

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Belgian researchers describe a new mechanism to enhance the restoration of the blood flow in ischemic diseases, which are among the leading causes of death worldwide. The team of Massimiliano Mazzone demonstrates that blocking the protein PhD2 in white blood cells accelerates the maturation of blood vessels. This leads to a better blood perfusion to organs that had been deprived from blood supply by ischemia. This might become a new therapeutic approach in ischemic diseases.

Bypassing the occlusion

Mazzone has demonstrated that arteriogenesis (growth of pre-existing connections between distinct blood vessels into functional arteries) can be accelerated by blocking the function of the protein PhD2 in a particular class of [white blood cells](#). This resulted in wider and functional vessels, which allows the blood to bypass the occlusion and thus offers better blood perfusion. The scientists want to investigate in further detail the therapeutic potential of blocking PhD2 for ischemic diseases.

Blood as supplier of vital substances

Every organ in our body needs enough oxygen and other vital substances in order to function properly. Our blood takes care of the transport

throughout our body to the different organs. It also removes toxic products. A lower - or no - blood perfusion to a certain organ, e.g. through an [occlusion](#) of a blood vessel, endangers this organ and can cause irreversible damage after a while. This is what happens in ischemic diseases, which can lead to heart attacks and strokes. The challenge is to restore the blood flow as soon as possible to avoid damage of the organs.

Natural processes to prevent ischemic tissue damage include arteriogenesis. This is essential to obtain blood vessels that are wide and 'mature' enough for a good blood stream. Enhancing this process receives a lot of attention as a [therapeutic approach](#) to avoid [tissue damage](#) by [ischemia](#).

Provided by Flanders Institute for Biotechnology

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