

THE
NOBEL
PRIZE

Medicine Prize 2019

How cells adapt to oxygen
availability

Nobel Prize Lessons

The Nobel Prize in Physiology or Medicine

“the person who shall have made the most important discovery within the domain of physiology or medicine”



Who is rewarded with the Medicine Prize?

People who have either made a discovery about how organisms work or have helped find a cure for a disease.



The 2019 Medicine Prize

What happens in cells if they receive too much or too little oxygen?



The Nobel Laureates

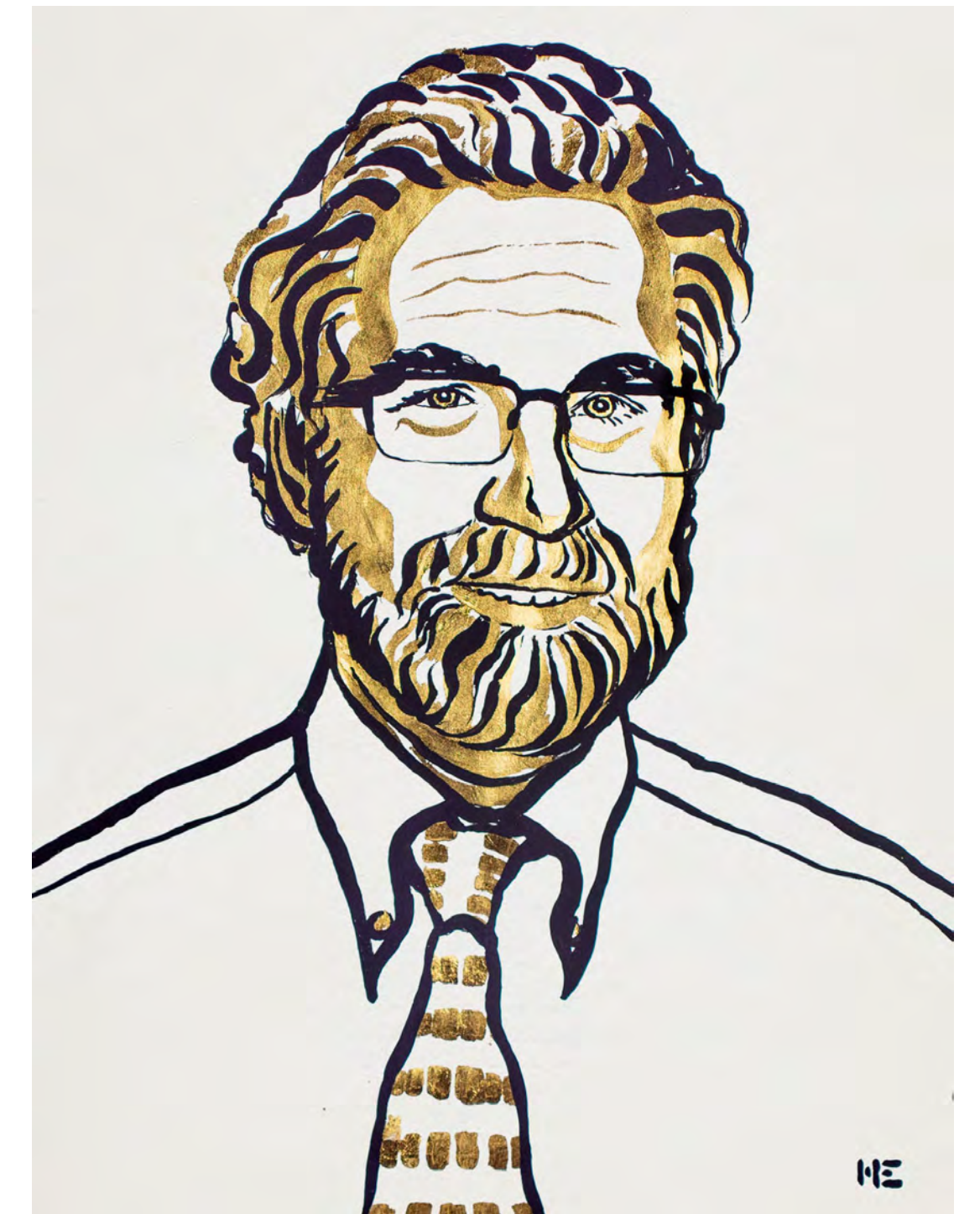
"for their discoveries
of how cells sense
and adapt to oxygen
availability"



William G. Kaelin Jr
Born: 1957, USA



Sir Peter J. Ratcliffe
Born: 1954, United Kingdom



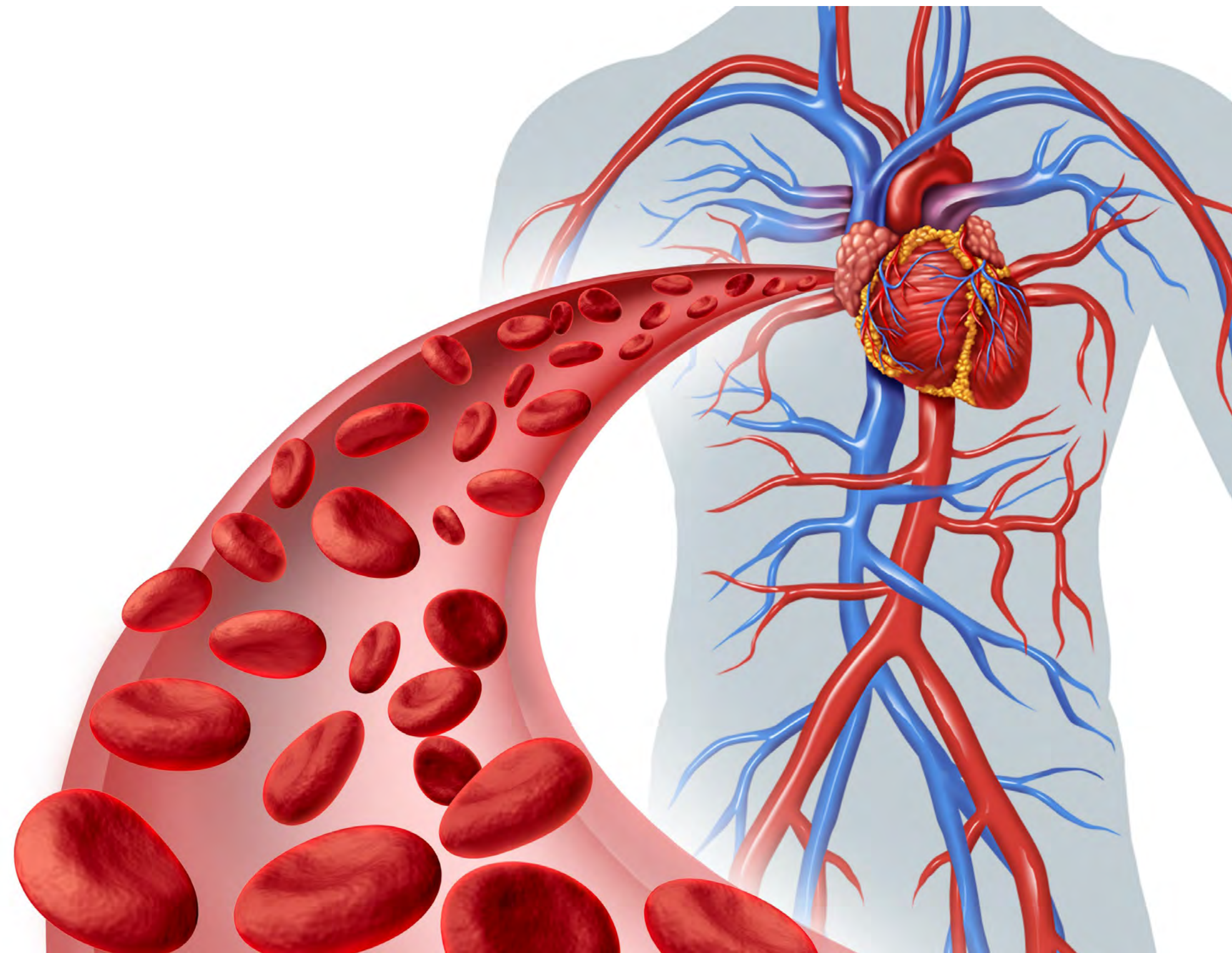
Gregg L. Semenza
Born: 1956, USA

All cells in the body need oxygen

Just as a candle needs oxygen in order to burn, cells in the body need oxygen in order to live.



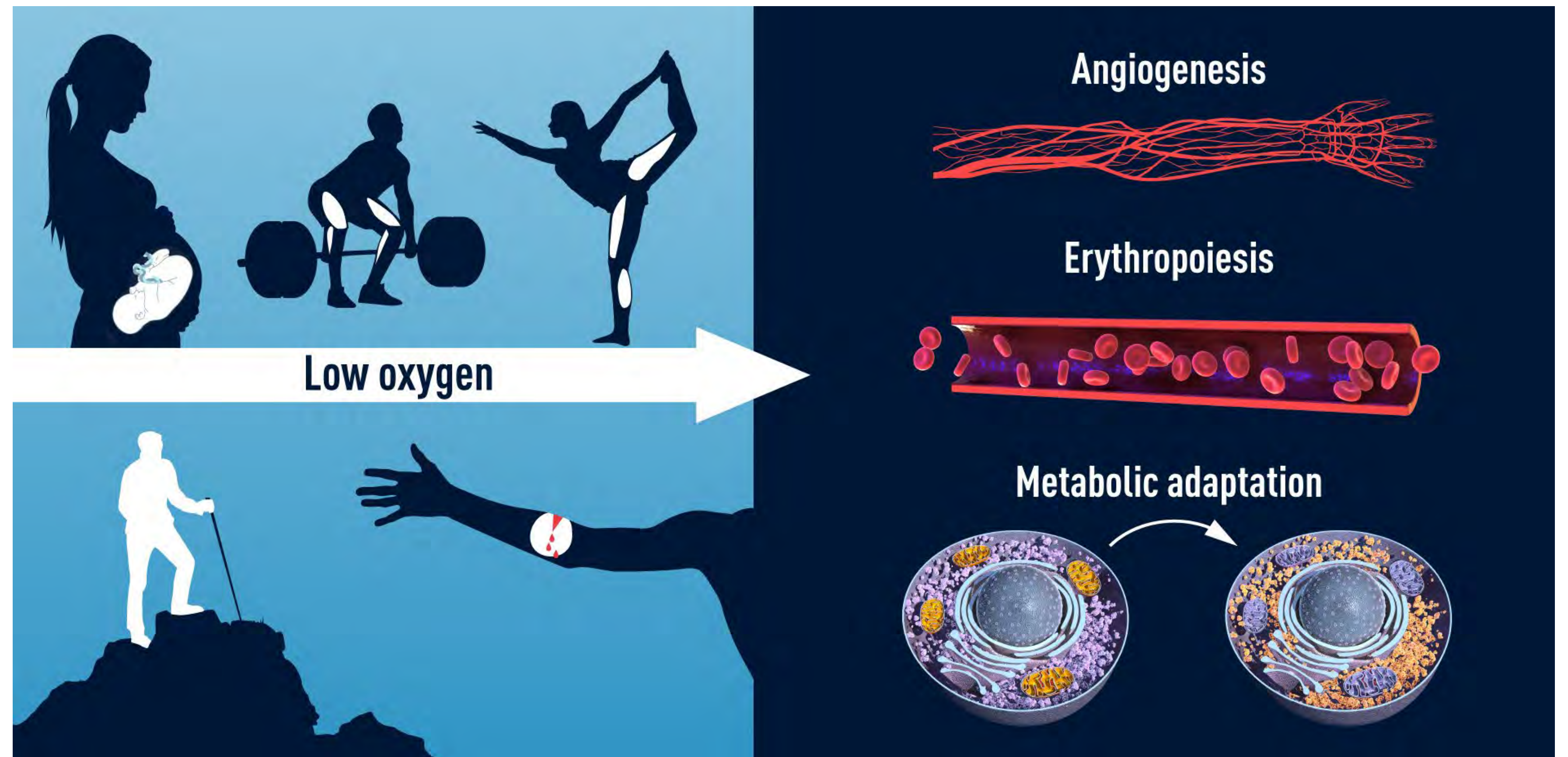
Transporting oxygen through the body



Red blood cells transport oxygen to all of the cells in our body.

Variations in oxygen availability lead to adaptation

The body must adapt quickly if oxygen levels change inside the body, or in the atmosphere.



The benefit

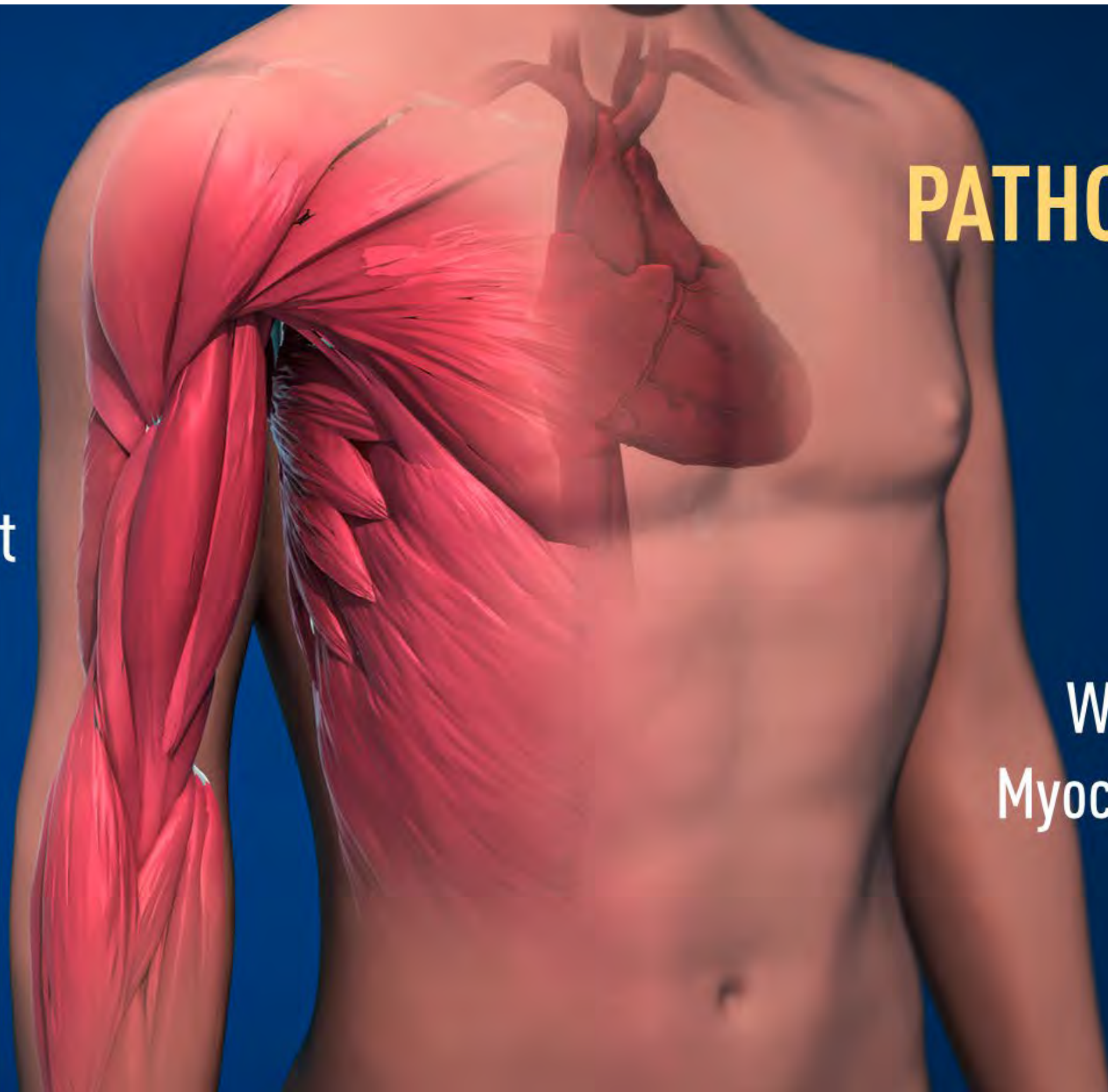
The Nobel Laureates' discoveries have given us new knowledge about human physiology – that is, how our organs and tissues function.

PHYSIOLOGY

Metabolism
Exercise
Embryonic development
Immune response
Altitude adaptation
Respiration

PATHOPHYSIOLOGY

Anemia
Cancer
Stroke
Infection
Wound healing
Myocardial infarction





PHOTOGRAPHER: CATHERINE KING

“We make
knowledge.
That’s what I do.”

Sir Peter J. Ratcliffe, 2019 Nobel Laureate

THE
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PRIZE

FOR THE GREATEST
BENEFIT TO
HUMANKIND

Nobel Prize Lessons