Josef Penninger

As a trained immunologist, Dr. Penninger's research has had a huge impact in many disease areas, and in some cases opened entirely new fields of research. With particular relevance to the current pandemic, Dr. Penninger, has played a singular role at essentially all stages of Angiotensin-converting enzyme 2 (ACE2) research, from its discovery to a rapid fundamental understanding of COVID-19 pathology and, translation of an ACE2 based drug to a highly promising, rational treatment for COVID-19. ACE2 has taken centre-stage in global research and drug development efforts after being identified as the receptor for SARS-Cov-2.

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Dr. Penninger's lab was the first to provide the first genetic proof that ACE2 is a negative regulator of the renin-angiotensin system, thus redefining the molecular control of heart functions [*Nature, 2002; 417: 822-8*]. He then went on to show that ACE2 is the key receptor for SARS infections in vivo [*Nature Med, 2005; 11: 875-9*], and how SARS infections and ACE2 control lung injury [*Nature, 2005; 436: 112-16*]. Recently, Dr. Penninger and colleagues published a breakthrough paper [*Cell, 2020*] demonstrating that a drug based on human recombinant soluble (hrs)ACE2 (APN01) can inhibit replication of SARS-CoV2 by 1000 to 5000-fold in cell lines and human blood vessel and kidney organoids. This drug is also being tested for acute lung injury in humans and has entered phase II clinical trials against COVID-19.