

An ACE2-Fc decoy produced in glycoengineered plants neutralizes ancestral and newly emerging SARS-CoV-2 variants and demonstrates therapeutic efficacy in hamsters

Esther Förderl-Höbenreich^{1*}, Shiva Izadi^{2*}, Lara Hofacker², Nikolaus F. Kienzl², Alexandra Castilho², Richard Strasser², Ferran Tarrés-Freixas^{3,4}, Guillermo Cantero^{3,4}, Núria Roca^{3,4}, Mònica Pérez^{3,4}, Cristina Lorca-Oró^{3,4}, Carla Usai^{3,4}, Joaquim Segalés^{4,5}, Júlia Vergara-Alert^{3,4}, Lukas Mach^{2**}, Kurt Zatloukal^{1**}

¹ Diagnostic and Research Institute of Pathology, Medical University of Graz, Graz, Austria

² Institute of Plant Biotechnology and Cell Biology, Department of Biotechnology and Food Sciences, BOKU University, Vienna, Austria

³ IRTA, Animal Health, Centre de Recerca en Sanitat Animal (CReSA), Campus de la Universitat Autònoma de Barcelona (UAB), 08193 Bellaterra, Catalonia, Spain

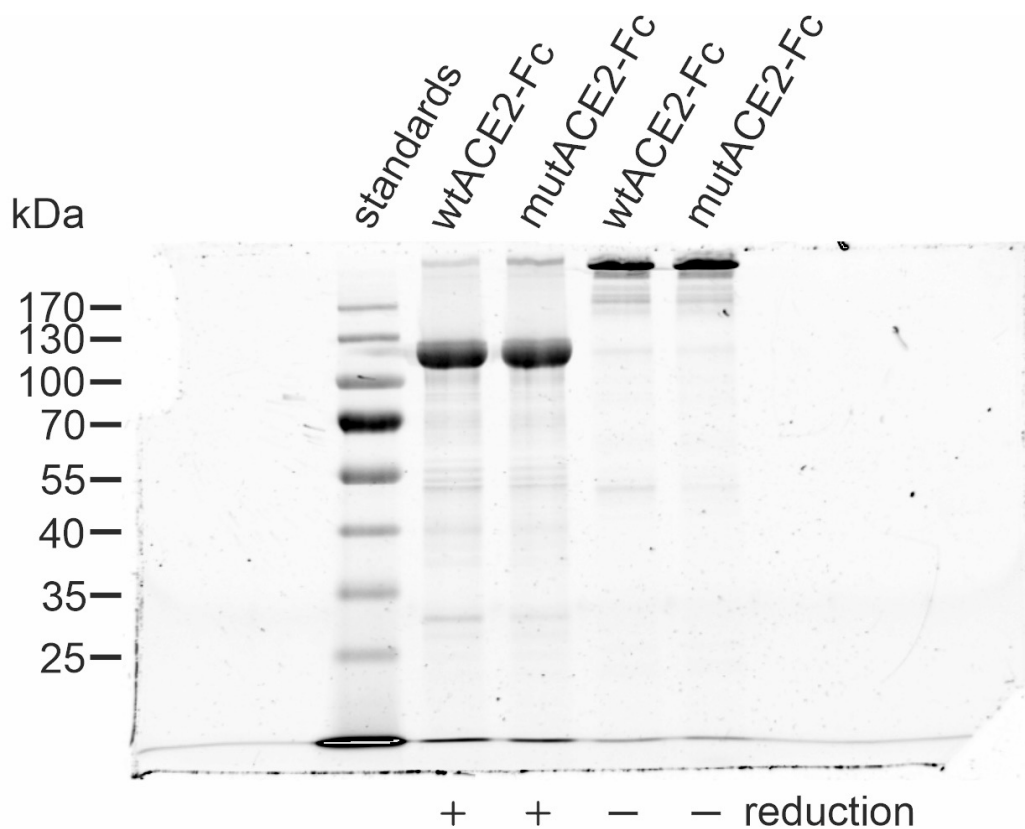
⁴ Unitat mixta d'investigació IRTA-UAB en Sanitat Animal, Centre de Recerca en Sanitat Animal (CReSA), Campus de la Universitat Autònoma de Barcelona (UAB), 08193 Bellaterra, Catalonia, Spain

⁵ Departament de Sanitat i Anatomia Animals, Facultat de Veterinària, Universitat Autònoma de Barcelona, 08193 Bellaterra, Catalonia, Spain

* Equally contributing authors

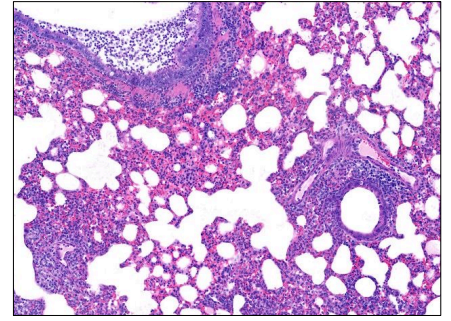
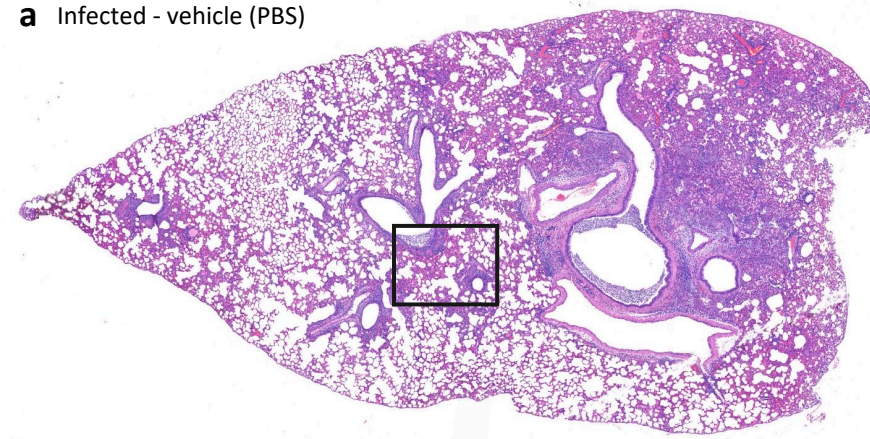
** Corresponding authors

E-Mail: kurt.zatloukal@medunigraz.at; lukas.mach@boku.ac.at

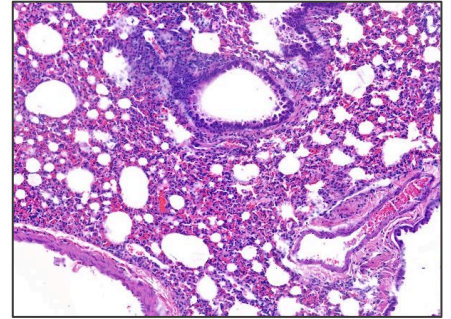
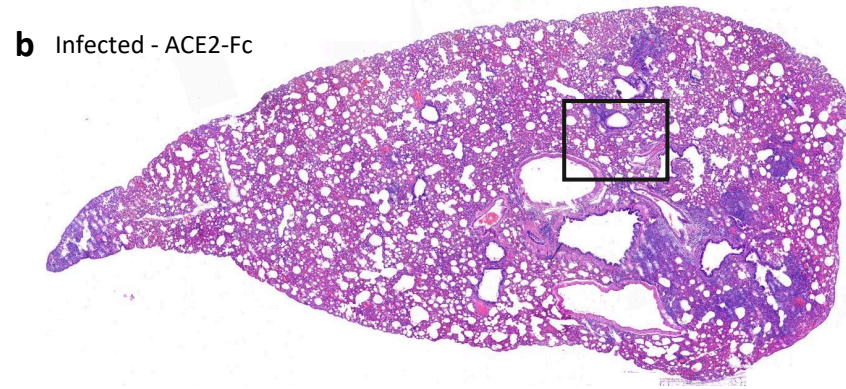


Supplementary Figure 1 SDS-PAGE analysis of purified wild-type (wt) and mutant (mut) ACE2-Fc under reducing and non-reducing conditions followed by Coomassie Brilliant Blue staining (uncropped gel of Figure 1a).

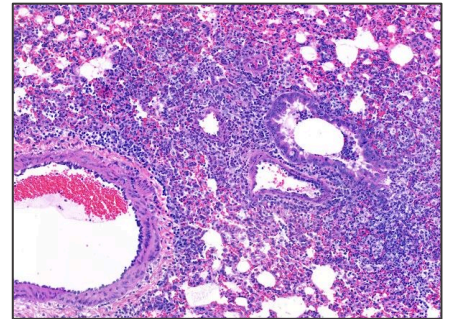
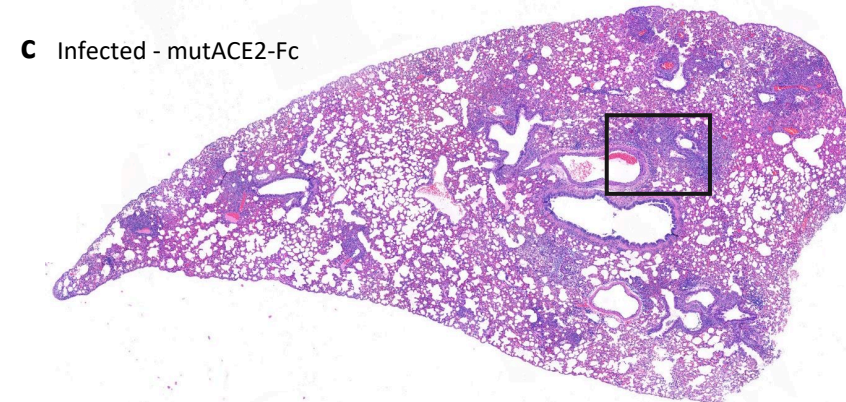
a Infected - vehicle (PBS)



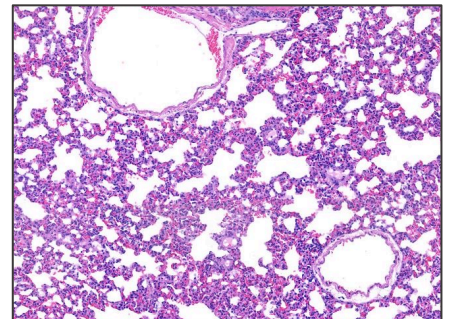
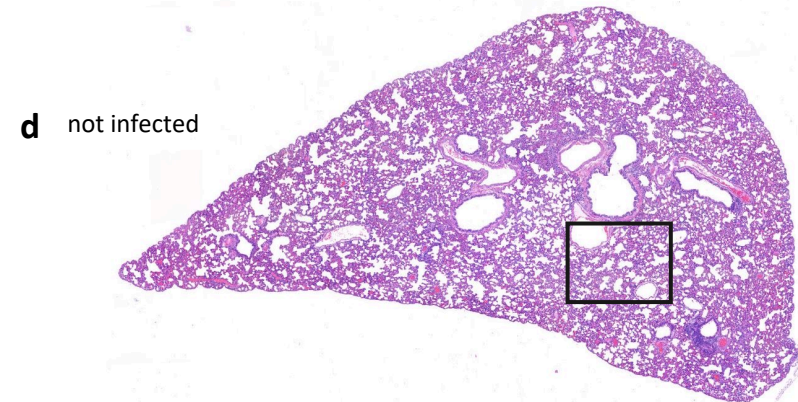
b Infected - ACE2-Fc



c Infected - mutACE2-Fc



d not infected



1000 μ m

200 μ m

Supplementary Figure 2: Hematoxylin/eosin stained sections of lung tissues 5 days after infection. Lungs from animals treated daily with vehicle (a), wild-type ACE2-Fc (b) or mutACE2-Fc (c). Lung tissue of an uninfected animal (d) was used as a negative control. Representative sections are shown in two magnifications.