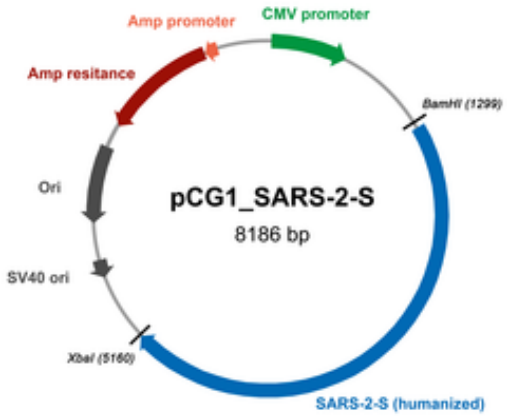
Technology Offer

Innovative plasmids and cells for SARS-CoV-2-specific research

Reference Number 07-00080

Challenge
The emergence of the novel, pathogenic SARS-CoV-2 and its rapid spread pose a global health emergency. Cell entry of coronaviruses depends on binding of the viral spike (S) proteins to cellular receptors and on S protein priming by host cell proteases. It has been demonstrated that SARS-CoV-2 uses the SARS-CoV receptor ACE2 for entry and the serine protease TMPRSS2 for S protein priming.



Vector map (exemplarily for pCG1_SARS-2-S)

Technology
Researchers at the German Primate Institute (DPZ) constructed various expression plasmids including sequences for SARS-CoV-2 spike protein (SARS-S-2) and the human TMPRSS2 protease. In addition, Vero cells stably expressing human TMPRSS2 were generated by retroviral transduction and blasticidin-based selection.

Commercial Opportunity
The plasmids can be used for transient expression of the relevant genes in cells to foster and support research in COVID-19.

Following plasmids can be provided under commercial MTA:

- pCG1_SARS-2-S (SARS-CoV-2 spike protein)
- pCG1_SARS-2-S-HA (SARS-CoV-2 spike protein with HA tag at C-terminus)
- pCG1_SARS-2-S-V5 (SARS-CoV-2 spike protein with V5 tag at C-terminus)
- pCG1_sol-SARS-2-S1-Fc (soluble variant of SARS-CoV-2 spike protein, S1 subunit fused to human IgG-Fc)
- pCAGGS_3xFLAG-TMPRSS2 (Flag-tagged TMPRSS2 protease)
- pQCXIBl-cMYC-TMPRSS2 (cMyc-tagged TMPRSS2 protease)

In addition, a Vero cell line stably expressing human TMPRSS2 protease is offered for research use.

Patent Situation
No patents have been filed.

Further Reading
Hoffmann et al. (2020), Cell 181, 1-10; Hoffmann et al. (2020), Mol. Cell. 78, 1-6

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