

# XRNA ACE2 Green

Human RNA FISH

Order No.:  
R-0201-020-FI

## Description

The XRNA ACE2 probe kit comprises 96 oligos detecting the human ACE2 mRNA. We are using the proprietary HuluFISH enzymatic multi fluorophore labeling technique enabling the detection of RNA at the single-cell, single-molecule level in cell and tissue samples. The probe kit is labeled in green (Atto488).

## Clinical Details

Novel coronavirus SARS-CoV-2 primarily causes severe respiratory infections which can progress to diverse clinical manifestations affecting multiple organs. The broad tissue tropism of the virus is attributed to the cell entry mechanism employed by SARS-CoV-2:

The viral spike (S) protein binds to the cellular angiotensin-converting enzyme 2 (ACE2) receptor facilitating attachment of the virus to the host cell. In a second step, the viral S protein is primed by the cellular transmembrane serine protease TMPRSS2, enabling membrane fusion and thereby cell entry. Both ACE2 and TMPRSS2 are pleiotropically expressed, including but not limited to the lung, gastrointestinal tissue, testes, and kidneys. There is histological evidence of SARS-CoV-2 infecting respiratory- and non-respiratory organs such as the heart, brain, liver, and kidneys. Endothelial cells, which are an essential component of every organ system, show a high level of ACE2 expression. ACE2 is known to play an important regulatory role in the immune- and cardiovascular system and was shown to be involved in the development of hypertension, heart failure and diabetes.

SARS-CoV, the coronavirus responsible for the SARS outbreak in 2002, utilizes the same cell entry mechanism as SARS-CoV-2. Studies have shown that SARS-CoV entry into the cell is followed by downregulation of ACE2, a mechanism which is now being suspected to apply to SARS-CoV-2 as well.

## Note

*For Research Use Only (RUO). Not for diagnostic procedures.  
Powered by HuluFISH technology from PixelBiotech.*

## Literature

- Nishiga et al (2020) Nature Reviews Cardiology 17:543-558
- Hoffmann et al (2020) Cell 181:271-280
- Baughn et al (2020) Mayo Clin Proc 95: 1989-1999

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Given the cardio- and lung-protective role of ACE2, this could be a cause of cardiac dysfunction and exacerbated lung damage in COVID-19 patients. Within the cell, ACE2 is part of the renin-angiotensin-aldosterone system and inactivates angiotensin II by converting it to angiotensin (1-7).

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