

Product Information Sheet for NR-52565

Modified pαH Vector Containing the Human Angiotensin-Converting Enzyme 2

Catalog No. NR-52565

This reagent is the tangible property of the U.S. Government.

For research use only. Not for human use.

Contributor:

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Manufacturer:

BEI Resources

Product Description:

Note: The label on the vial is incorrect; the expressed protein has a *Strep-tag*[®] II.^{1,2}

NR-52565 is intended for producing pseudotyped particles/pseudovirions.¹ NR-52565 is not intended for recombinant soluble protein expression.

The vector for the human angiotensin-converting enzyme 2 (ACE2) (GenBank: [GQ262784](#)) was designed by subcloning the ACE2 mRNA sequence into the pαH mammalian expression vector, which was modified by subcloning an HRV3C protease cleavage site, and the tags octa-histidine and *Strep-tag*[®] II downstream of the open reading frame.¹ NR-52565 contains the beta-lactamase gene, *bla*, to provide transformant selection through ampicillin resistance in *Escherichia coli* (*E. coli*). The complete plasmid sequence and map are provided on the BEI Resources webpage. The plasmid was produced in *E. coli* and extracted.

ACE2 is a human receptor expressed widely, including in the heart, kidney, small intestine and lung, and is involved in the regulation of hypertension and other cardiovascular diseases.² The SARS-Related Coronavirus 2 spike glycoprotein mediates viral binding to the host ACE2 receptor.³ This protein forms a trimer, and when bound to ACE2, allows fusion of the viral and cellular membranes, allowing viral entry and replication. The interaction of ACE2 and the spike glycoprotein during viral infection is currently under study.^{2,3}

Material Provided:

Each vial contains plasmid DNA in TE buffer (10 mM Tris-HCl, 1 mM EDTA, pH 8.0). The DNA concentration and volume provided are shown on the Certificate of Analysis. The vial should be centrifuged prior to opening. Note: The contents of the vial should be used to replicate the plasmid in *E. coli* prior to mammalian expression.

Packaging/Storage:

NR-52565 was packaged aseptically in screw-capped plastic cryovials. The product is provided frozen on dry ice and

should be stored at -20°C or colder immediately upon arrival. Freeze-thaw cycles should be minimized.

Citation:

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: Modified pαH Vector Containing the Human Angiotensin-Converting Enzyme 2, NR-52565."

Biosafety Level: 1

Appropriate safety procedures should always be used with this material. Laboratory safety is discussed in the following publication: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, and National Institutes of Health. Biosafety in Microbiological and Biomedical Laboratories. 5th ed. Washington, DC: U.S. Government Printing Office, 2009; see www.cdc.gov/biosafety/publications/bmbl5/index.htm.

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References:

1. Graham, B., Personal Communication.

2. Kai, H. and M. Kai. "Interactions of Coronaviruses with ACE2, Angiotensin II, and RAS Inhibitors – Lessons from Available Evidence and Insights into COVID-19." Hypertens. Res. (2020): doi: 10.1038/s41440-020-0455-8. PubMed: 32341442.
3. Hulswit, R. J. G., C. A. M. de Haan and B.-J. Bosch. "Coronavirus Spike Protein and Tropism Changes." Adv. Virus Res. 96 (2016): 29-57. PubMed: 27712627.

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