Materials Design Analysis Reporting (MDAR) Checklist for Authors

The MDAR framework establishes a minimum set of requirements in transparent reporting applicable to studies in the life sciences (see Statement of Task: doi:10.31222/osf.io/9sm4x.). The MDAR checklist is a tool for authors, editors and others seeking to adopt the MDAR framework for transparent reporting in manuscripts and other outputs. Please refer to the MDAR Elaboration Document for additional context for the MDAR framework.

Materials

Antibodies	Yes (indicate where provided: page no/section/legend)	n/a
For commercial reagents, provide supplier name, catalogue number and RRID, if available.	Antibody details are provided in the 'Materials and Methods' section, under 'Antibodies and reagents'. Supplementary materials page 2. **Polyclonal rabbit anti-SARS-CoV Nucleocapsid (N) protein antibody** (Rockland Cat# 200-401-A50, RRID:AB_828403) **Polyclonal rabbit anti-SARS-CoV-2 (2019-nCoV) Spike antibody** (SinoBiological Cat# 40591-T62) **Goat anti-rabbit Alexa Fluor-647** (Thermo Fisher Scientific Cat# A-21245, RRID:AB_2535813) **Goat anti-rabbit Alexa Fluor-488** (Thermo Fisher Scientific Cat# A-11034, RRID:AB_2576217) **Goat anti-rabbit Alexa Fluor-594** (Thermo Fisher Scientific Cat# A-11012, RRID:AB_2534079) **Monoclonal mouse anti-β actin antibody** (Sigma-Aldrich Cat# A1978, RRID:AB_476692) **Mouse anti-ACE2** (Proteintech Cat# 66699-1-Ig), **Mouse anti-GFP** (Roche Cat# 11814460001, RRID:AB_390913) **Rabbit anti-mCherry** (Abcam Cat# ab167453, RRID:AB_2571870) **Rabbit anti-NRP1** (Abcam Cat# ab81321, RRID:AB_1640739) **Mouse anti-SARS-CoV-2 Spike antibody [1A9] (S2 epitope)** (GeneTex Cat# GTX632604 In-house prepared monoclonal antibodies against b1b2 domain of human NRP-1 (Dr. Tambet Teesalu, University of Tartu, Estonia) Monoclonal antibody against the hemagglutinin of influenza A/duck/New Zealand/164/76(H11N3) was a kind gift of Dr. Robert Webster	

Cell materials	Yes (indicate where provided: page no/section/legend)	n/a
Cell lines: Provide species information, strain. Provide accession number in repository **OR** supplier name, catalog number, clone number, **OR** RRID	Details of cell lines and their sources are provided in the 'Materials and Methods' section, under 'Cell culture and transfection'. Supplementary materials page 2-3. **Caco-2 cells:** Human gut epithelial cells (original source ATCC HTB-37) **Calu-3 cells:** Human lung adenocarcinoma cells (original source ATCC HTB-55) **Hela cells**: Human cervical adenocarcinoma cells (original source ATCC CCL-2) **HEK293T cells**: Human kidney cells (original source ATCC CRL-11268) **Vero E6 cells**: African green monkey kidney cells (original source ATCC CRL-1586) **PPC-1**: human primary prostate cancer. Obtained from Erkki Ruoslahti laboratory at Cancer Research Center, Sanford-Burnham-Prebys Medical Discovery Institute, La Jolla, USA. **M21**: human melanoma cells. Obtained from David Cheresh at University of California San Diego, La Jolla, USA. **Caco-2 shSCR and Caco-2 shNRP1**: a kind gift from Dr. Giuseppe Balistreri, University of Helsinki, Finland.	

Primary cultures: Provide species, strain, sex of origin, genetic modification status.		n/a

Experimental animals	Yes (indicate where provided: page no/section/legend)	n/a
Laboratory animals: Provide species, strain, sex, age, genetic modification status. Provide accession number in repository **OR** supplier name, catalog number, clone number, **OR** RRID		n/a
Animal observed in or captured from the field: Provide species, sex and age where possible		n/a
Model organisms: Provide Accession number in repository (where relevant) **OR** RRID		n/a

Plants and microbes	Yes (indicate where provided: page no/section/legend)	n/a
Plants: provide species and strain, unique accession number if available, and source (including location for collected wild specimens)		n/a
Microbes: provide species and strain, unique accession number if available, and source	Details of virus isolation and propagation are provided in the 'Materials and Methods' section, under 'SARS-CoV-2 isolation and infection'. Supplementary materials page 4-5. SARS-CoV-2/human/Liverpool/REMRQ001/2020 and SARS-CoV-2 ΔS1/S2 were supplied by Dr. Andrew Davidson and David Matthews, University of Bristol, UK	

Human research participants	Yes (indicate where provided: page no/section/legend)	n/a
Identify authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.		n/a
Provide statement confirming informed consent obtained from study participants.		n/a
Report on age and sex for all study participants.		n/a

Design

Study protocol	Yes (indicate where provided: page no/section/legend)	n/a
For clinical trials, provide the trial registration number **OR** cite DOI in manuscript.		n/a

Laboratory protocol	Yes (indicate where provided: page no/section/legend)	n/a
Provide DOI or other citation details if detailed step-by-step protocols are available.	Published image analysis software is referenced in 'Materials and Methods' under 'Image analysis'. Supplementary material page 8-9.	

Experimental study design (statistics details)	Yes (indicate where provided: page no/section/legend)	n/a
State whether and how the following have been done**, or** if they were not carried out.		
Sample size determination		n/a
Randomisation		n/a
Blinding		n/a
Inclusion/exclusion criteria		n/a

Sample definition and in-laboratory replication	Yes (indicate where provided: page no/section/legend)	n/a
State number of times the experiment was replicated in laboratory	The number of repeats for each experiment is provided in the figure legends.	
Define whether data describe technical or biological replicates	The data are defined as biological replicates in the 'Materials and Methods' section under the 'Statistical analysis' section. Supplementary materials page 13-14.	

Ethics	Yes (indicate where provided: page no/section/legend)	n/a
Studies involving human participants: State details of authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.		n/a
Studies involving experimental animals: State details of authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.		n/a
Studies involving specimen and field samples: State if relevant permits obtained, provide details of authority approving study; if none were required, explain why.		n/a

Dual Use Research of Concern (DURC)	Yes (indicate where provided: page no/section/legend)	n/a
If study is subject to dual use research of concern, state the authority granting approval and reference number for the regulatory approval		n/a

Analysis

Attrition	Yes (indicate where provided: page no/section/legend)	n/a
State if sample or data point from the analysis is excluded, and whether the criteria for exclusion were determined and specified in advance.		n/a

Statistics	Yes (indicate where provided: page no/section/legend)	n/a
Describe statistical tests used and justify choice of tests.	Statistical tests are described in the figure legends. The use of statistical tests is described in 'Materials and Methods' under the 'Statistical analysis' section. Supplementary materials page 13-14.	

Data Availability	Yes (indicate where provided: page no/section/legend)	n/a
State whether newly created datasets are available, including protocols for access or restriction on access.	S1 CendR peptide complex has been deposited at the Protein Data Bank (PDB) with accession code 7JJC. This is described in 'Materials and Methods' under 'Data depostion'. Supplementary materials page 17.	
If data are publicly available, provide accession number in repository or DOI or URL.	S1 CendR peptide complex has been deposited at the Protein Data Bank (PDB) with accession code 7JJC. This is described in 'Materials and Methods' under 'Data depostion'. Supplementary materials page 17.	
If publicly available data are reused, provide accession number in repository or DOI or URL, where possible.	The PDB accession code for the crystal structure of the NRP1 b1 - VEGF-A_{164} fusion complex (PDB ID: 4DEQ)is provided in the legend of Fig 2 and S3.	

Code Availability	Yes (indicate where provided: page no/section/legend)	n/a
For all newly generated code and software essential for replicating the main findings of the study:		
State whether the code or software is available.	Image analysis code and software is available	
If code is publicly available, provide accession number in repository, or DOI or URL.	Published image analysis software is referenced in 'Materials and Methods' under 'Image analysis'. Supplementary material page 8-9. http://www.cellclassifier.org/download/ https://github.com/spreka/biomagdsb	

Reporting

Adherence to community standards	Yes (indicate where provided: page no/section/legend)	n/a
MDAR framework recommends adoption of discipline-specific guidelines, established and endorsed through community initiatives. Journals have their own policy about requiring specific guidelines and recommendations to complement MDAR.		
State if relevant guidelines (eg., ICMJE, MIBBI, ARRIVE) have been followed, and whether a checklist (eg., CONSORT, PRISMA, ARRIVE) is provided with the manuscript.		n/a