

Resource Summary Report

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3D Printed Nasopharyngeal Swabs with Wrapped Rayon Fibers Developed and validated by SCREEN (San Diego Covid19 Research Enterprise Network)

DOI:10.17504/protocols.io.bemxjc7n

Type: Protocol

Proper Citation

Justin Ryan, Nicole Coufal, Sage Aronson, Kelsey Ladt, Catelyn Andersen, Mark Zeller, Stephen Rawlings, Denise Malicki, Gene Yeo 2020. 3D Printed Nasopharyngeal Swabs with Wrapped Rayon Fibers Developed and validated by SCREEN (San Diego Covid19 Research Enterprise Network). protocols.io dx.doi.org/10.17504/protocols.io.bemxjc7n

Protocol Information

URL: <https://dx.doi.org/10.17504/protocols.io.bemxjc7n>

Authors: Justin Ryan, Nicole Coufal, Sage Aronson, Kelsey Ladt, Catelyn Andersen, Mark Zeller, Stephen Rawlings, Denise Malicki, Gene Yeo

Group: Coronavirus Method Development Community

Summary: The global pandemic due to SARS-CoV2 virus, also known as COVID-19, has drastically increased the need for nasopharyngeal-swab-based testing resulting in shortages of commercially available nasopharyngeal (NP) swabs. One solution to overcome the national deficit of swabs is for medical device manufacturers and hospitals to generate NP swabs. Numerous entities are attempting to manufacture a direct from 3D printing NP swab but presented here is a validated two-part swab manufacturing protocol utilizing 3D printing and manual intervention (wrapping of nylon fibers). We recommend material extrusion or powder bed fusion technologies utilizing materials that can be sterilized using high level heat decontamination. Through the application of 3D printing and manual fabrication, we present an NP swab that can be created in a controlled environment. Coupled with CDC published viral transport media, the following swab can be used for COVID-19 testing or for testing for other respiratory viruses (eg, influenza, respiratory syncytial virus). The CDC viral transport medium has only four reagents which are readily available. .justify:after { content: ""; display:inline-block; width: 100%; }

Affiliations: Rady's Children Hospital; San Diego Covid Research Enterprise Network, University of California, San Diego; San Diego Covid Research Enterprise Network, Neurophotometrics; San Diego Covid Research Enterprise Network, Neurophotometrics; San Diego Covid Research Enterprise Network, Scripps Research Institute; San Diego

Covid Research Enterprise Network, Scripps Research Institute; San Diego Covid Research Enterprise Network, University of California San Diego; San Diego Covid Research Enterprise Network, Rady Children's Hospital; San Diego Covid Research Enterprise Network, University of California, San Diego; San Diego Covid Research Enterprise Network

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