

**Ad Hoc Group for Medical Research / Coalition for Health Funding**

**National Institute on Deafness and  
Other Communication Disorders (NIDCD)**

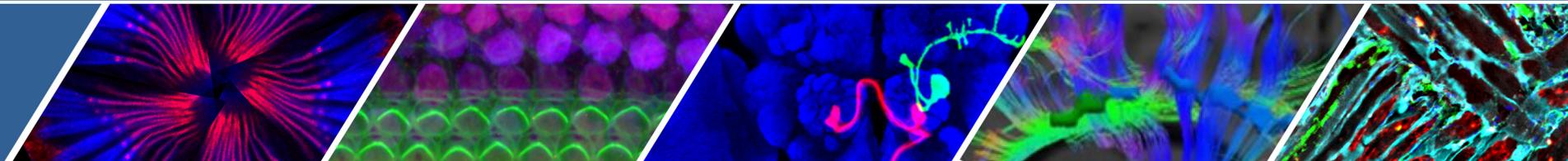
**COVID-19 Research**

**Debara L. Tucci  
NIDCD Director**

**May 13, 2021**



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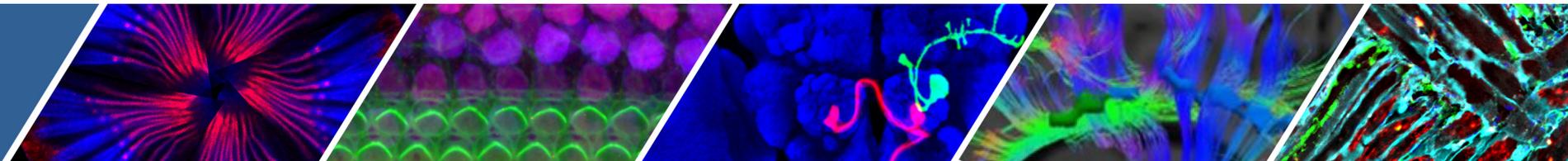


# NIDCD Mission and Vision

- **Mission:** To conduct and support research and research training in the normal and disordered processes of **hearing, balance, taste, smell, voice, speech, and language.**
- **Vision:** Advancing the science of communication to improve lives.



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# Communication Challenges During the Pandemic

Face coverings obscure facial features and can:

- disrupt speech perception
- hide the emotion conveyed by the speaker
- filter speech, making sounds less clear



## 8 TIPS FOR IMPROVING COMMUNICATION WHEN WEARING A FACE COVERING



### BE AWARE

Is the person you're communicating with having trouble understanding you? Ask and adapt if needed.



### BE PATIENT

Face coverings block visual cues and muffle sounds that help us understand speech, which can make interactions frustrating.



### BE MINDFUL

Consider how physical distancing might affect your communication. As distance increases, sound levels decrease, and visual cues are more difficult to see.



### BE LOUD AND CLEAR

Speak up, but don't shout. Focus on speaking clearly. Consider wearing a clear face covering, if possible. If you're having trouble understanding, ask the person you're talking with to speak louder. If you lip-read, ask those you interact with regularly to wear a clear face covering.



### TURN DOWN THE BACKGROUND VOLUME

Background noise can make conversation especially hard. When possible, move to a quieter spot or turn down the sound.



### COMMUNICATE ANOTHER WAY

Use a smartphone talk-to-text application or writing tools (paper/pen, whiteboard) to communicate.\*



### CONFIRM THAT YOUR STATEMENT IS CLEAR

Ask if your message has been understood.

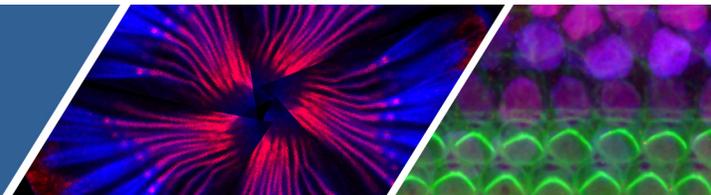


### BRING A FRIEND OR BE A FRIEND

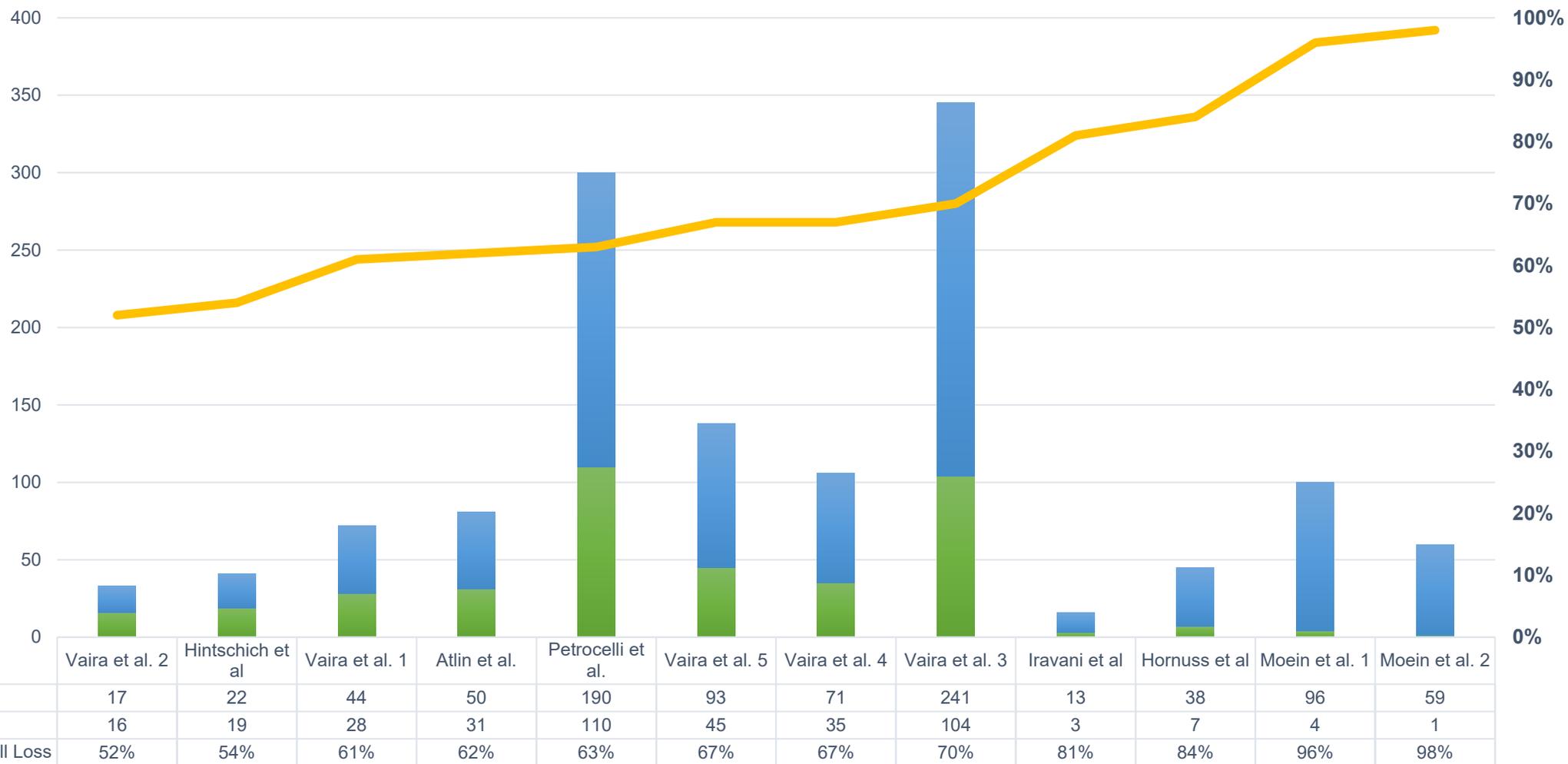
If it's essential that you comprehend important spoken details—during a discussion with a health care provider, for example—consider bringing a friend or family member with you. Or, offer to come along to listen and take notes when a friend has an important appointment or meeting.



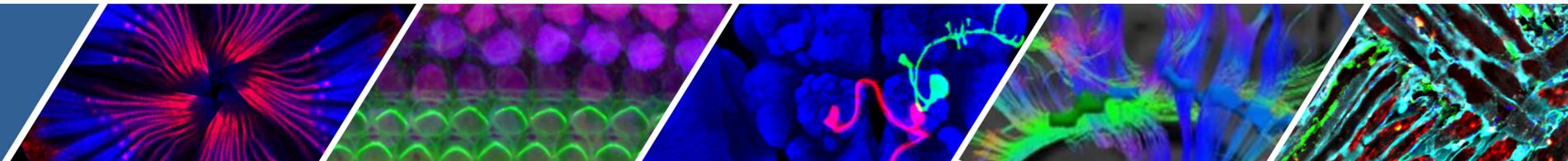
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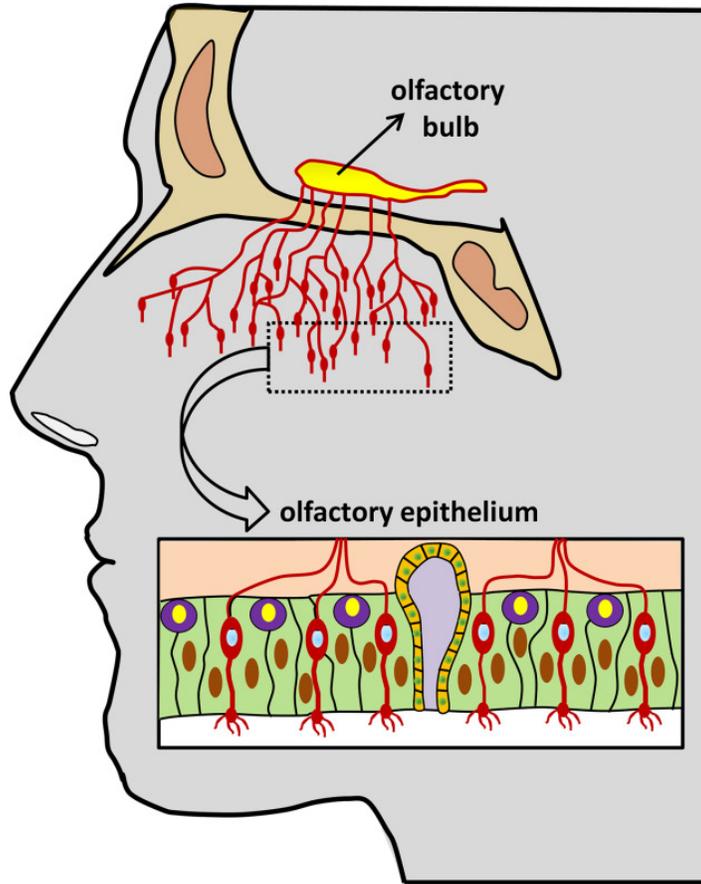
# Loss of Smell is a Strong Predictor of COVID-19



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# Regeneration and the Peripheral Olfactory System

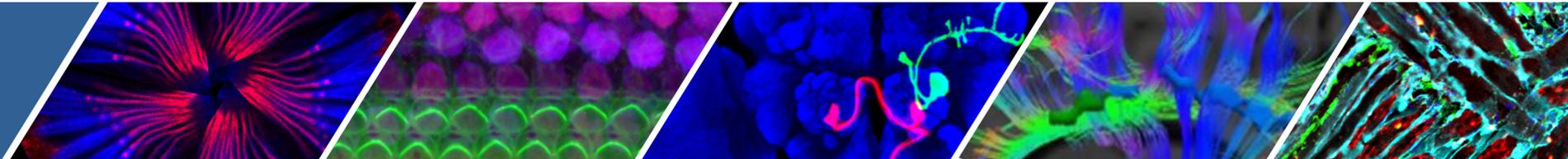


- The olfactory epithelium is renowned for its ability to support life-long neurogenesis and to recover after injury and restore its projection into the central nervous system.
- The olfactory epithelium is composed of three distinct cell types: basal cells, olfactory sensory neurons, and sustentacular (or supporting) cells.

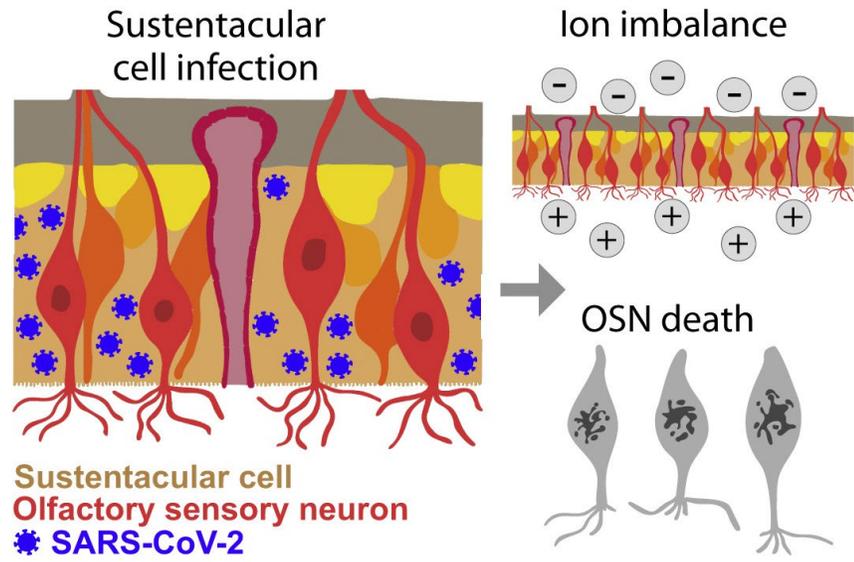
The Anatomical Record, Volume: 302, Issue: 3, Pages: 405-427, First published: 16 April 2018, DOI: (10.1002/ar.23816)



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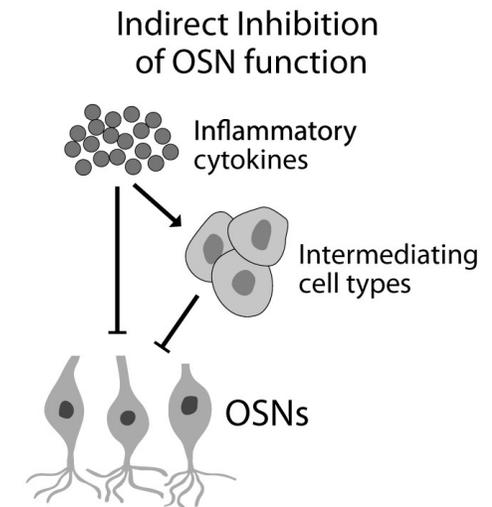


# Likely Olfactory System Entry Points for SARS-CoV-2

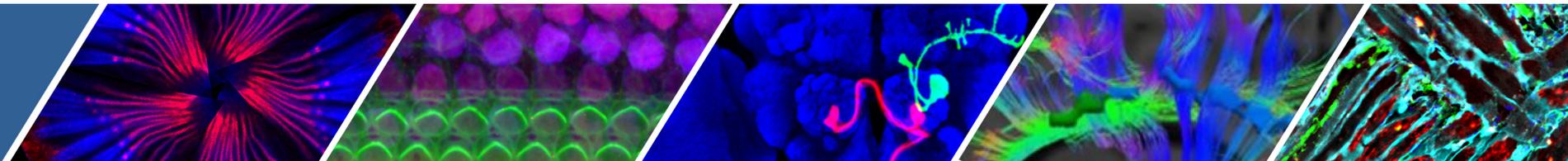


Sustentacular cells, Bowman's gland cells, and microvillar cells in the **olfactory epithelium** may be direct entry points for the virus.

**Inflammatory cytokines** may also directly or indirectly inhibit olfactory sensory neuron function.

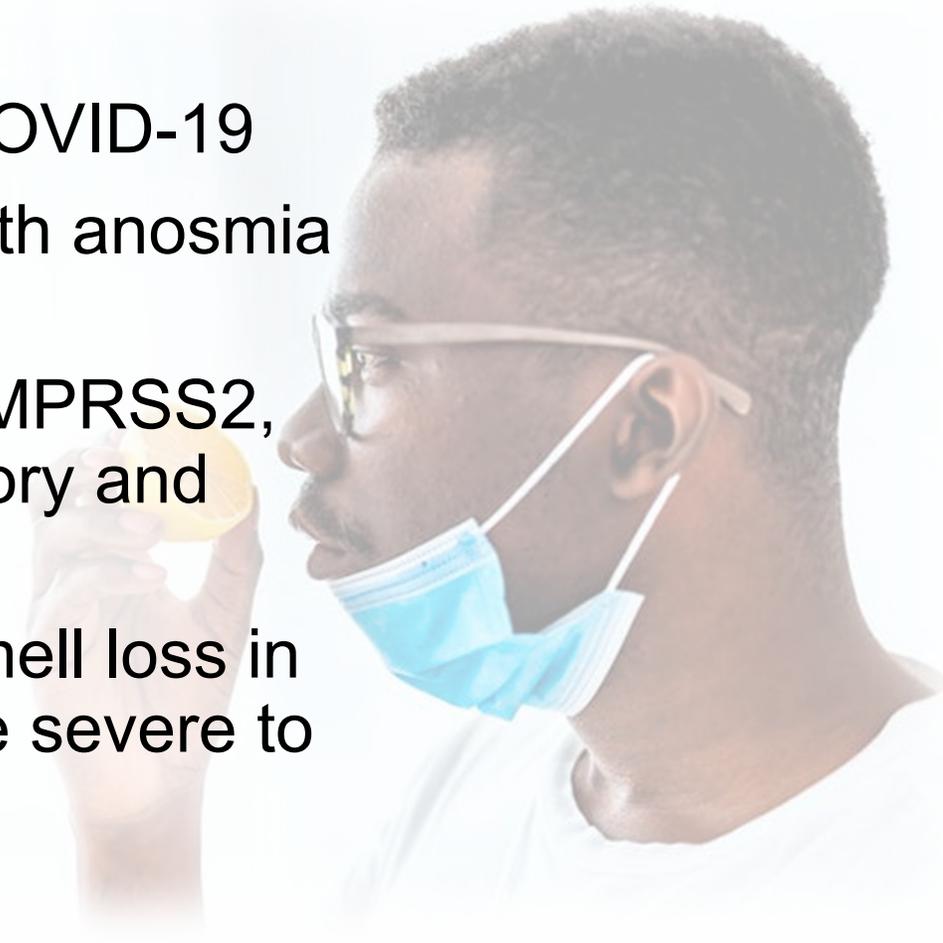


Cooper et al, 2020

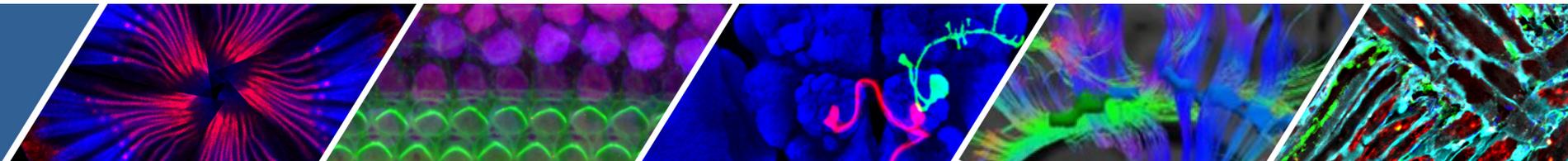


# COVID-19 and Chemosensory Research (Administrative Supplements)

- Determine if anosmia is an early indicator of COVID-19
- Identification of genetic variation associated with anosmia in individuals with COVID-19
- Characterization of the expression of ACE2, TMPRSS2, and related SARS-CoV-2 entry genes in olfactory and taste epithelia
- Examine mechanisms underlying persistent smell loss in COVID 'long-haulers' (5-10% patients still have severe to complete smell loss 6 months post infection)



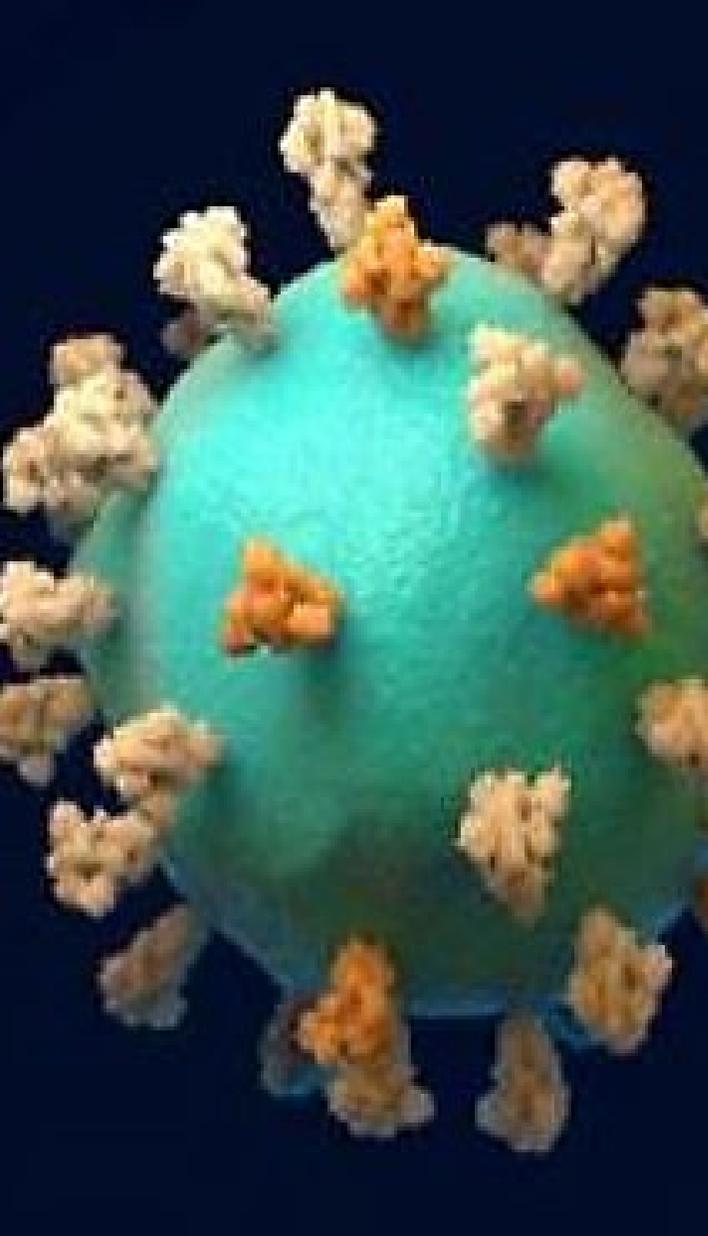
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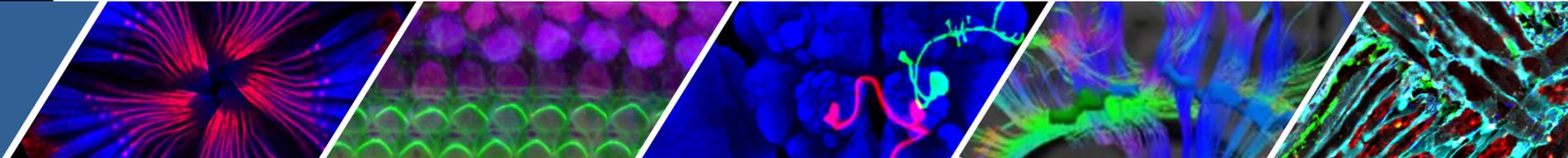
# COVID-19 and Chemosensory Research (Administrative Supplement)

Analysis of postmortem tissue from patients who died due to COVID-19 to determine if virus is neuro-invasive. This work will:

- evaluate the olfactory periphery and olfactory bulb for COVID-related changes in histology, cell morphology, tissue degeneration, immune responses, vasculature, and gene expression
- elucidate possible morphological and molecular changes in taste epithelium associated with SARS-CoV-2 infection



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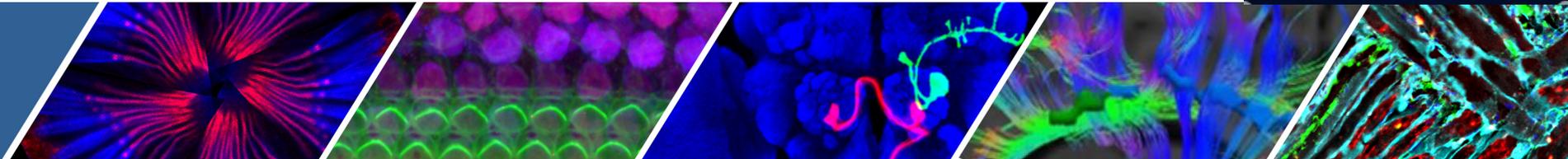


# COVID-19 Research in Other NIDCD Mission Areas (Administrative Supplements)

- Evaluate if calcitonin gene-related peptide blockers (for treating migraines) may reduce COVID-19 severity
- Assess the effects of COVID-19 on access to hearing healthcare for deaf/hard of hearing children/families
- Determine the optimal level of tele-practice treatment platforms for children with language impairment
- Develop interventions to reduce the incidence and impact of post-intubation laryngeal injury



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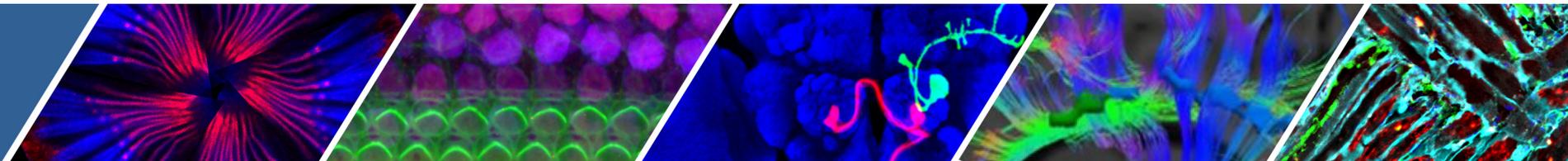
# NIDCD Notice of Special Interest: COVID-19

## Research on the Impact of COVID-19 on Mission Specific Sensory and Communication Disorders

- [NOT-DC-20-008](#) (NIDCD contact: Bracie Watson)
- Applications for research on COVID-19 in relation to NIDCD's mission areas
  - Various eligible funding mechanisms (R01, R21, with or without clinical trials), SBIR/STTR (small business grants)
  - Encourages multi-disciplinary approaches to move the research beyond *in vitro* and animal models



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# NIH Rapid Acceleration of Diagnostics (RADx): Initiatives and Goals



*“Now is the time for that unmatched American ingenuity to bring the best and most innovative technologies forward to make testing for COVID-19 widely available.”*

— NIH Director Francis S. Collins, M.D., Ph.D.

## RADx-Tech

speed up development of point-of-care and home-based testing for COVID-19  
(‘Shark Tank’ competition)

## RADx-ATP (Advanced Tech Platforms)

supports rapid scale-up of existing advanced testing platforms

## RADx-UP (Underserved Populations)

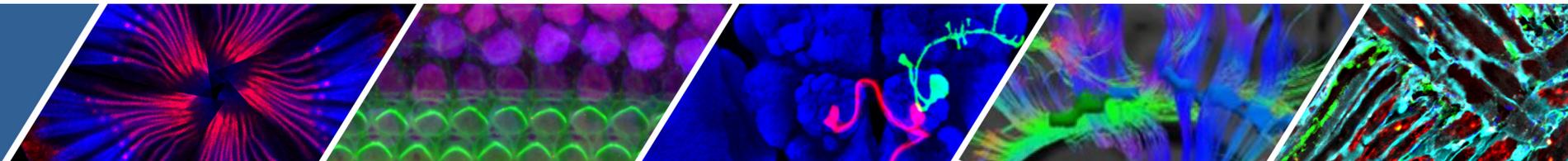
addresses disparities in COVID-19 morbidity and mortality

## RADx-Radical (rad)

supports new non-traditional approaches to address gaps in COVID-19 testing

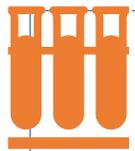


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# RADx-rad Initiative: Chemosensory Testing as a COVID-19 Screening Tool

## Develop objective chemosensory tests to screen for COVID-19



Develop objective chemosensory tests to screen for COVID-19



Fast, instantaneous results



Disposable, self-administered



Highly scalable



Validated using diverse populations and across the lifespan

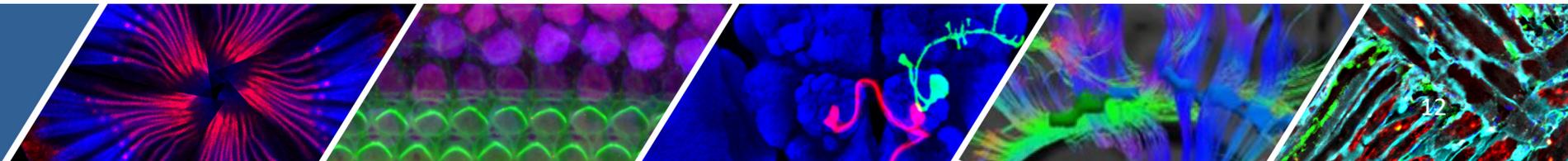


Stable and suitable for global deployment



Multiple versions to allow for repeat testing with the same person over time

- Determine if chemosensory loss is an early indicator of COVID-19 and predictive of disease severity, disease persistence, or other neurological manifestations.
- NIDCD funded 4 awards at a total cost of \$3.7 million



# Ensuring Support for Investigators during the COVID-19 Pandemic

**Delayed the start dates** of some awards to accommodate lab closures

**Approved generous no-cost extensions** as well as modifications of existing protocols to allow telehealth/virtual intervention approaches

Encouraged grantees to **shift research focus** to other activities or convert in-person activities to virtual, when appropriate to focus on safe conduct of research

**Extended eligibility period** of some early career applicants

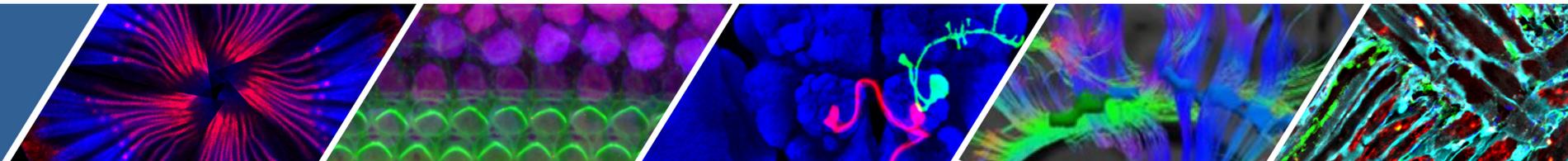
Permitted **continued payment of salaries** on research grants despite lab closures and increased clinical responsibilities during pandemic

**Allowed a one-page update** with preliminary data as post-submission materials for applications

Allowed early career scientists whose career trajectories have been significantly impacted by COVID-19 to request **grant extensions** – F, K, and ECR (R21) grantees



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# Questions?



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<https://www.nidcd.nih.gov>



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	NIDCD seeks candidates for institute director position.
	NIDCD research finds therapy to partially restore hearing in mice.
	NIDCD hosts EARssentials training course July 16-20.

## News >

Exhausting tumor cells makes them more vulnerable to immunotherapy - I am Intramural, the NIH Intramural Research Program blog (7/17/2018)

In memoriam: David Lim, M.D., first NIDCD scientific director (7/17/2018)

See, hear, speak: Are kids' senses ready for school? - NIH News in Health (7/16/2018)

Eating well may slow hearing loss in women - NIH News in Health (7/13/2018)

Novel drug therapy partially restores hearing in mice (6/28/2018)

[More News](#)

## Health Information >



Hearing



Balance



Taste and Smell



Voice, Speech, and Language



Health Statistics

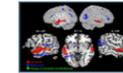


It's a Noisy Planet

[More Health](#)

## Research >

Extramural Research (Grantee Programs)  
Intramural Research (NIDCD Labs)  
Clinical Studies



## Funding >

Types of Funding  
How to Apply  
Find Funding Opportunities



## Training >

Career Development Awards  
Training Centers  
Intramural Training



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