

# Research Town Hall

April 16, 2020

**Dennis Charney**

**Eric Nestler**

**Marta Filizola**

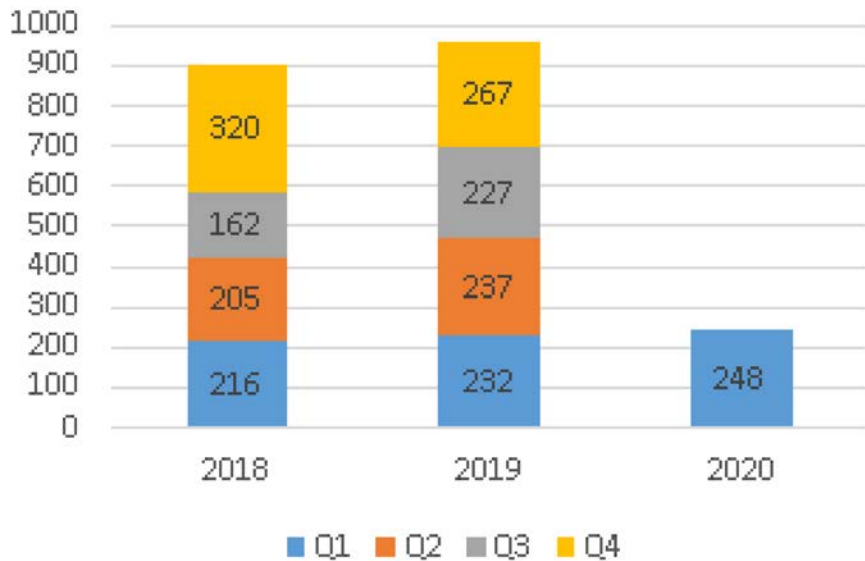
**Reg Miller**

**Roz Wright**

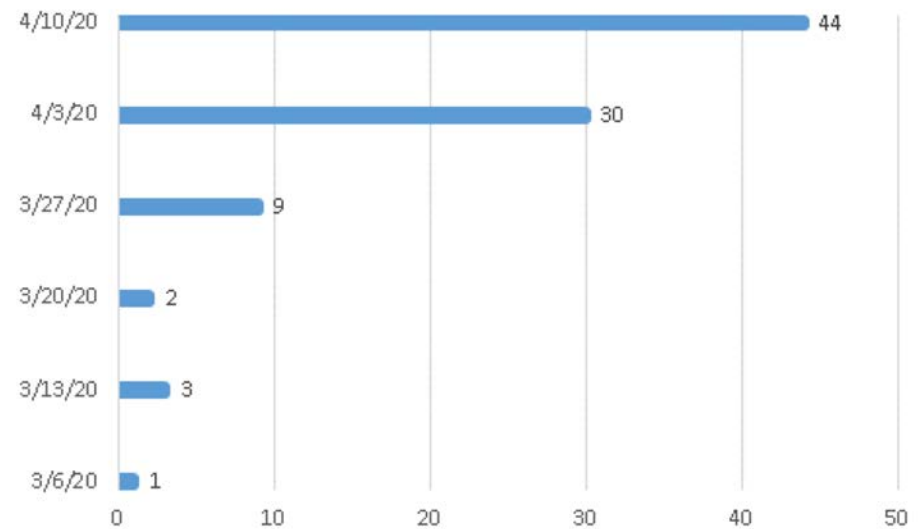
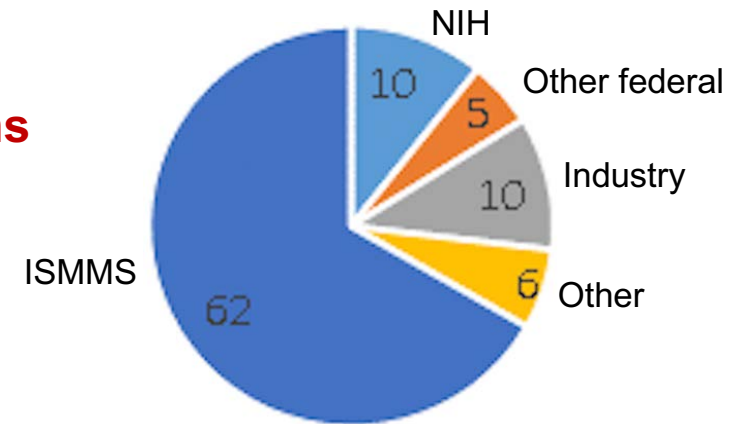


# Mount Sinai Research in the Time of COVID-19

Total research submissions are up by >10% compared with last year:



COVID-19 submissions



# Mount Sinai Research in the Time of COVID-19

**Mount Sinai has received >\$30M in new philanthropy to support COVID-19 research; and we are playing a leading role nationally and internationally:**

## **Microbiology (Garcia-Sastre, Krammer, Marazzi, Simon, tenOever, others)**

- **Serologic testing**
- **Novel animal models**
- **Studies of viral infectivity and replication**
- **Vaccine development**

## **Infectious Disease (Aberg, Chen, Merad, others)**

- **Clinical trials with antiviral agents, anti-cytokine antibodies, convalescent sera, hydroxychloroquine, many others**

## **Immunology (Merad, Bhardwaj, Brody, Charney [Alex], Marron, Moran, Parek, others)**

- **Cytokine responses—adaptive and maladaptive—to infection**
- **Therapeutic antibodies**

# Mount Sinai Research in the Time of COVID-19

## Continued:

### **Biobanking (Cordon-Cardo, Brody, Charney [Alex], Crary, Merad, others)**

- **Biobanking blood, sputum, lung, and many other tissues and excretions**
- **Biobanking autopsy specimens including brains**

### **Genomics (Cho, Kenny, Sebra, Charney [Alex], Abul-Husn, Merad, van Bakel)**

- **Connecting COVID-19 infections with BioMe**
- **Population study of genomic determinants of COVID-19 infection**
- **European roots of most COVID-19 infections in NYC**

### **Cell models (Papapetrou, Brennand, Marro, others)**

- **human iPSC-derived cells for lung, trachea, and brain to study infectivity**

### **PTSD Center (Kahn, Murrough, Yehuda, Charney [Dennis], Feder, Katz, Lowe, Ripp, Southwick, others)**

# Mount Sinai Sinai in the Time of COVID-19

## Continued:

**EMR, imaging, digital, and related informatic approaches (Bottinger, Fayad, Howell, Bergink, Bernheim, Charney [Alex], Darrow, Finkelstein, Freeman, Glicksberg, Glowe, Huckins, Kovatch, Levin, Nadkarni, O'Reilly, Reich, others)**

- **STOP COVID-19 app (more than >15,000 have signed up to date)**
- **NY COVID Informatics Taskforce (NYCIT)**
- **New insights into clinical care (e.g., use of anticoagulants)**
- **Outcomes for pregnant women with COVID-19 infections**

**Healthcare disparities (Gelijns, Horowitz, Vreeman, Bagiella, Masci, others)**

- **Locally and globally**

**Bioengineering (Fayad, Friedman, others)**

- **NASA's Jet Propulsion Lab, with ISMMS and RPI as partners, is developing prototype ventilator**

# Mount Sinai Research in the Time of COVID-19

**Covid Pilot Grant program to support innovative research with expected high impact within 6 months; six pilots funded to date:**

- Akbarian, Stem Cell-based Approach to SARS-CoV-2 Molecular and Cellular Targets in Lung and Brain
- Bagiella, Multistate Markov Models For Covid-19 Progression, \$75,788
- Bergink, The Impact Of Sars-Cov-2 Infection During Pregnancy On Maternal And Child Outcomes
- Guccione, SSO-Mediated Induction of an Anti-SARS-CoV-2 hACE2 Decoy Receptor
- Iyengar, Identify and Repurpose Drugs to Control SARS-CoV-2 Infectivity
- Maher, COVID Viscoelastic Testing Project

***Clinical trials research studies now being reviewed by a separate committee headed by Roz Wright.***

# Overall Research Productivity Continues

**PIs, postdoctoral fellows, graduate students, and research staff are utilizing this time as productively as possible:**

- **WIPs, lab meetings uninterrupted**
- **Thesis committee meetings, thesis proposal defenses, thesis defenses ongoing**
- **Submitting grants**
- **Writing papers**
- **Writing review papers**
- **Analyzing data**
- **Analyzing existing datasets in new ways**
- **Establishing new collaborations**
- **Catching up with new and renewal IACUC and IRB submissions with launch of Huron (eIACUC and eIRB/Ruth)**
- **New seminar series (e.g., faculty WIPs)**
- **Department and Institute retreats held remotely**
- **Department workshops (e.g., DPS on Covid-19 drug discovery)**

# Overall Research Productivity Continues

## Examples of high profile papers published or accepted in March & April alone:

Alshime F et al (Bogunovic D, others). JAK Inhibitor Therapy in a Child with Inherited USP18 Deficiency. **N Engl J Med** 2020;382:256-265.

Amanat F, Krammer F. SARS-CoV-2 Vaccines: Status Report. **Immunity** 2020;in press

Baker SJ et al. (Reddy lab). A contaminant impurity and not rigosertib, is a tubulin binding agent. **Mol Cell** 2020;in press.

Ferland JN, Hurd YL. Deconstructing the neurobiology of cannabis use disorder. **Nat Neurosci** 2020;in press.

Flanigan ME et al (Russo lab). Orexin signaling in GABAergic lateral habenula neurons modulates aggressive behavior. **Nat Neurosci** 2020;in press.

Galsky MD et al. Atezolizumab with or without chemotherapy in metastatic urothelial cancer (IMvigor130): a multicentre, randomised, placebo-controlled phase 3 trial. **Lancet** 2020;in press.

Heitman N et al (Rendl lab). Dermal sheath contraction powers stem cell niche relocation during hair cycle regression. **Science** 2020;367:161-166.

Humphries AC et al. (Mlodzik lab). Mutations associated with human neural tube defects display disrupted planar cell polarity in *Drosophila*. **Elife** 2020;9:e53532.



## **Continued:**

Issler O et al (Nestler lab). Sex-specific role for the long non-coding RNA LINC00473 in depression. **Neuron** 2020;in press.

Lepack AE et al (Maze lab). Dopaminylation of histone H3 in ventral tegmental area regulates cocaine seeking. **Science** 2020;368:197-201.

Liang R et al (Ghaffari lab). Restraining Lysosomal Activity Preserves Hematopoietic Stem Cell Quiescence and Potency. **Cell Stem Cell** 2020;26:359-376.e7.

Maier B et al (Merad lab). A conserved dendritic-cell regulatory program limits antitumour immunity. **Nature** 2020;580:257-262.

Ramdhani S et al (Raj lab). Tensor decomposition of stimulated monocyte and macrophage gene expression profiles identifies neurodegenerative disease-specific trans-eQTLs. **PLoS Genet** 2020;16:e1008549.

Richter F et al (Gelb lab). Role of noncoding de novo variants in congenital heart disease. **Nat Genet** 2020; in press.

Spertus JA et al (Stone, others). Health Status after Invasive or Conservative Care in Coronary and Advanced Kidney Disease. **N Engl J Med** 2020;in press.

Zhou X et al (Zou/Friedel lab). Microglia and macrophages promote corralling, wound compaction and recovery after spinal cord injury via Plexin-B2. **Nat Neurosci** 2020;23:337-350.

# **When Will We Ease Restrictions on Research Laboratories?**

**We need to develop a plan now that eases restrictions gradually as soon as it is safe to do so:**

**We will do this under the guidance of our infectious disease experts.**

**Wet laboratories have relatively low people densities at baseline:**

- **Moving to staggered hours would ensure robust social distancing**

**What form of surveillance and containment program is needed to relaunch our laboratory efforts?**

- **Role for masks, PPE, more regular lab cleaning**
- **Role for testing**

**We can tentatively aim for mid-May but this will require a lot of work and depends on shifting judgements about safety (federal, state, local, institutional guidelines).**

# **YOUR QUESTIONS**