Mount Sinai Research in the Time of COVID-19

Total research submissions are up by >10% compared with last year:
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)
Examples of high profile papers published or accepted in March & April alone:


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.


Continued:


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