

Covid 19
BioEngineering Advisory Board Webinar

Therapeutics



Covid-19 – Therapeutic Objectives

- Treat severe patients requiring significant intervention
- Reduce the overall course of the disease
- Prophylaxis to reduce "catching" the disease

Covid-19 affects many "body systems" and multiple approaches may be needed

Covid-19 – Existing Therapeutic Options















- Anti-virals - Stop the virus from spreading in the body
- Anti-inflammatories – Reduce the “cytokine storm” which may be triggering severe complications
- Ancillary Therapies – Help improve immune response, restore damage

Covid-19 – ~2000 Trials Worldwide with Existing Therapies

- Anti-virals/Protease Inhibitors - Stop/Slow the virus
 - Remdesivir, Favipiravir, Ritonovir/Lopinavir
- Anti-inflammatories – Reduce the “cytokine storm” which may be triggering severe complications
 - Sarilumab, Tocilizumab, Hydroxychloroquine
- Ancillary Therapies – Help improve immune response, restore damage
 - Convalescent Plasma Therapy, Stem Cell Therapy

COVID-19: Frontrunners in Treatment

Treatment Developments & Timeline

	Q1 2020	Q2 2020	Q3 2020	Q4 2020	2021+
Remdesivir	Phase III Study shows that it Cuts hospital stays by 31% compared to placebo.	 	FDA Authorization for Emergency Use		
Ritonovir/ Lopinavir	Phase II Study shows positive results for combination therapy with Ribavirin and IFN-beta				
Favipiravir	Russian Study with 40 patients shows 65% patient tested -ve for coronavirus at 10 th day		 Avigan's (Fujifilm) trial final results expected in Jul		
Sarilumab	Interim result of Regeneron trial of 457 patients shows promise for only Critical Patients and not Severe patients				
Tocilizumab	Roche Study demonstrates significant decrease in mortality	 	Chinese Observation study also shows positive data		
Convalescent Plasma therapy	FDA Authorization for Emergency Use 		Multiple RCTs to be initiated		
Stem cell therapy	ADSCC shows positive results for 73 patients	 	Mesoblast Phase III trial initiated		
Hydroxy-chloroquine			3 observation studies at NY, France and Albany for +2,500 patients shows no significant benefit of HCQ	 Oxford Trial early results expected	

Covid-19 – New Rules For New Drugs – Vir Biotechnology

- April 6, 2020 – Announce collaboration with GSK on S309 antibody isolated from a patient who recovered from severe acute respiratory syndrome (SARS) in 2003
- May 18, 2020 – Announce “S309, an antibody isolated from a, which has been shown to prevent SARS-CoV-2 live virus infection of cells”; Two new antibodies drug candidates, VIR-7831 and VIR-7832 derived by S309
- May 29, 2020 – Manufacturing agreement with Biogen/GSK/Samsung for production of both antibodies
- Phase II trials plan to start this summer

3 Years REDUCED to 3 Months

Covid-19 – How Can BioE Help?

- Develop disease model systems?
- Predict combination drug approaches?
- Speed up production systems for novel therapies?
- ??????