Task Force on Repurposing of Drugs (TFORD) for COVID-19

S&T Core Group on COVID19 constituted by PSA to GoI

Comparison of Drug Candidates studied by TFORD-COVID19-India (Ref: TFORD/Heat-Map/001)

	Readiness of the drug candidate for COVID19 for India								Drug potential for India		
Scoring Scale	See Section B for scoring scale	See Section C for scoring scale	See Section D for scoring scale	See Section E for scoring scale	See Section F for scoring scale	See Section G for scoring scale	See Section H for scoring scale		See Section K for scoring scale		Scoring Scale
Drug candidate	Strength of scientific evidence on mechanism of action	Importance of mechanism of action and target	Strength of results at pre-clinical stage	Availabilty of Human Safety Data demonstrated through clinical studies	Clarity and certainty on formulations, method of administration, drug delivery and bioavailability for COVID19	Progress of clinical trials for COVID-19 (*outcomes as concluded by authors of published data)	Clarity and degree of certainty about supply chain and manufacturability in India	SCORE: READINESS (for India)	Outcome of clinical trials	SCORE: DRUG POTENTIAL (for India)	Drug candidate
Chloroquine	3	4	4	5	3	4	5	79%	2	54%	Chloroquine
Hydroxychloroquine	3	4	4	5	3	5	5	81%	2	54%	Hydroxychloroquine
Remdesivir	3	5	4	3	2	2	3	60%	No data yet	Awaiting CT data	Remdesivir
Lopinavir/Ritonavir	3	5	3	5	4	3	5	78%	1	34%	Lopinavir/Ritonavir
Favipiravir	3	5	4	5	4	4	3	79%	4	73%	Favipiravir
Baloxavir Marboxil	2	1	3	5	2	2	3	46%	No data yet	Awaiting CT data	Baloxavir Marboxil
Darunavir	2	2	2	5	4	3	5	61%	1	34%	Darunavir
Ribavirin + IFN beta	3	2	2	4	4	2	3	55%	No data yet	Awaiting CT data	Ribavirin + IFN beta
Galidesivir	2	4	3	2	1	1	1	35%	No data yet	Awaiting CT data	Galidesivir
Oseltamivir	2	1	2	5	4	2	5	52%	1	34%	Oseltamivir
Umifenovir(**)	3	4	3	5	4	4	1	62%	3	42%	Umifenovir
Camostat mesylate	4	5	4	5	4	2	1	63%	No data yet	Awaiting CT data	Camostat mesylate
Ruxolitinib	4	4	2	5	4	2	3	65%	No data yet	Awaiting CT data	Ruxolitinib
Interferon beta	4	4	3	5	4	2	3	69%	No data yet	Awaiting CT data	Interferon beta
Tocilizumab	4	5	3	5	4	4	3	79%	4	73%	Tocilizumab
Ustekinumab	1	1	1	5	1	1	3	29%	No data yet	Awaiting CT data	Ustekinumab
Nigericin	2	3	2	1	1	1	2	31%	No data yet	Awaiting CT data	Nigericin
Teicoplanin	4	4	4	5	1	1	5	57%	No data yet	Awaiting CT data	Teicoplanin
Ivermectin	3	3	4	5	1	1	5	53%	No data yet	Awaiting CT data	Ivermectin
Source: TFORD-COVID19-India (c) Venture Center, 2020						(**) CT for prophylaxis					

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SCORING TABLE

Score	SECTION B: Strength of data for MoA for COVID-19	SECTION B: Importance of MoA and target in the disease	SECTION C: Strength of results at pre-clinical stage	SECTION D: Availabilty of Human Safety Data (demonstrated through clinical studies)	SECTION F: Clarity and certainty on formulations, method of administration, drug delivery for COVID19	SECTION G: Status & Outcome Clinical Trials for COVID-19	Section H: Clarity and degree of certainty about supply chain and manufacturability in India	Score	SECTION K: Outcome of clinical trial
0	NA	NA	NA	NA	NA	NA	NA	0	No Outcome/Negative Outcome - Data from atleast 2 randomized trials with appropriate controls, from different groups
1	No evidence for MoA in other Coronaviruses and COVID-19	Target and MoA is not relevant to COVID-19	No pre-clinical data available	No data available	Drug not approved for any indication/ No RoA formulation data available	No ongoing trials	Not manufactured or sold in India	1	No Outcome/Negative Outcome - Data from any observational studies or trials lacking proper controls from different or same groups
2	MoA in other Viruses/Coronaviruses is known. For COVID-19 not proven	Target/MoA maybe relevant for COVID-19 but issues exist with achieving on target action	Pre-clinical data shows that drug is not effective for other Viruses/Coronaviruses or COVID-19	Investigational Drug. No data available	Drug not approved for any indication but RoA, formulation data available for specific conditions	Trials in progress. Results awaited.	Synthesis undertaken by R&D Labs	2	Mixed evidence –Equal number of positive and negative reports from designed trials
3	MoA for COVID-19 is known but scientific data is not convicing/not adequate	Target/MoA is relevant for the disease but may not have an effect on disease outcome if targeted	Pre-clinical data, demonstrating +ve outcome of the drug exists for other types of Coronavirus Diseases, but no data available for COVID-19	Investigationsl Drug. Data is available but not adequate	RoA known for approved indication but data not available for formulation/RoA for COVID-19 OR data indicates that RoA could be different for COVID-19	Trials in progress. Early results/Interim data available. More data needed/Data is not convincing	Manufactured in India by 1-2 companies; issues with raw materials and other supplies	3	Indication of Positive Outcome - Early data/ limited number of studies. (Any kind of study- observational studies/trials lacking proper controls/designed trials) NO Negative Studies
4	MoA for COVID-19 is known, data is convincing/adequate	Target/MoA is relevant for COVID-19 and outcome can be moderate if modulated	Pre-clinical data shows +ve effect of drug on COVID-19 through limited type of assays (in-vitro/in-vivo)	Approved Drug. Data is available for < 2 years of use	Data available. Proposed RoA /Formulation for COVID-19 is likely the same as that for Approved Indication	50% of Clinical Trials showing Positive outcome (Drug improved primary and/or secondary outcomes) shown in trials	Manufactured in India by < 3 companies; No issues exist with manufacturing and sales	4	Positive Outcome - Data from atleast any observational studies or trials lacking proper controls from different or same groups. NO negative studies
5	MoA for COVID-19 is established, multiple sources of data confirm the same	Target/MoA is relevant for COVID-19 and outcome can be significant if modulated	Pre-clinical data shows +ve effect of drug on COVID-19 through in-vitro and in-vivo studies, confirmed by multiple sources	Approved Drug. Data is available for > 2 years of use	Data available. RoA formulation confirmed by demonstration in clinical studies for COVID-19	>75% of trials showing positive outcome of the drug (Drug improved primary and/or secondary outcomes) shown in trials	Manufactured in India by > 3 companies; No issues exist with manufacturing and sales	5	Data from atleast 2 randomized trials with appropriate controls, from different groups NO negative studies

Source: TFORD-COVID19-India (c) Venture Center, 2020

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Background information

About TFORD-COVID19

The Principal Scientific Advisor to the GoI, Dr K VijayRaghavan, has constituted a S&T Core Group on COVID19. Under the aegis of the S&T Core Group on COVID19, a Task Force has been constituted focused on Repurposing of Drugs for COVID19 (in short "TFORD-COVID19"). The Task Force is being coordinated by Dr V Premnath, Head, NCL Innovations at CSIR-NCL and Director, Venture Center and Dr Anurag Agarwal, Director, CSIR-IGIB. The Nerve Center for the Coordination is located be at Venture Center, Pune (located in the campus of CSIR-NCL).

About Advisory Group

The Nerve Center at TFORD-COVID19 has constituted an inter-disciplinary Advisory Group. This Advisory Group reviews the information compiled by the Nerve Center, provides suggestions on data, information sources, organization of data etc. while also providing inputs to refine the analysis and create a structured information base to support decision-making. The Advisory Group also provides expert input and opinions on certain selected points where experience-based inputs are needed. The members of the Advisory Group for each Discussion Paper are listed at https://nclinnovations.org/covid19/teams/ .

Nerve Center Team

Dr Priya Nagaraj, Dr Vidula Walimbe, Dr Smita Kale, Dr Kirtee Wani, Dr. Tejas Shah, Dr Mugdha Lele, Mr Navnath Kadam, Dr Manisha Premnath, Dr Premnath V

Citation:

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Cautionary Note

This Heat Map is a work-in-progress document. As the information about drug candidates evolves, the Heat Map is expected to change. The data presented here is the opinion of the members contributing to the Task Force and not meant to reflect the Government's position or that of any specific organization or individual. This information should also not be interpreted as guidance for clinical case management.