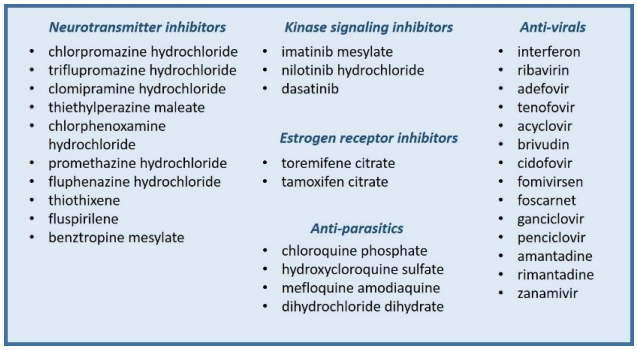
TECHNOLOGY

Repurposed drugs for Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV) and Middle East Respiratory Syndrome Coronavirus (MERS-CoV)

OVERVIEW

Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS) are viral respiratory diseases caused by novel coronavirus strains (SARS-CoV and MERS-CoV, respectively). Categorized as a select agent in 2012, approximately 9,000 cases of SARS have been reported, with 9.5% mortality rate. To date, there have been 1,917 reported cases of MERS with a 35% fatality rate. In response to the growing urgency for therapeutic interventions, UMB researchers screened 290 drugs for antiviral activity against SARS-CoV and/or MERS-CoV. Pharmacological classes of compounds were identified as showing antiviral activity against either or both MERS-CoV and SARS-CoV, with no or low toxicity. These pharmacological classes include neurotransmitter inhibitors, kinase signaling inhibitors, estrogen receptor inhibitors, DNA metabolism inhibitors, and anti-parasitic agents.



The neurotransmitter inhibitors, kinase signaling inhibitors, estrogen receptor inhibitors, DNA metabolism inhibitors, and anti-parasitic agents shown in the figure, alone or in combination with the antiviral drugs shown in the same figure, can have a therapeutic effect against SARS and MERS as measured by *in vitro* antiviral activity assays and in *in vivo* rodent and non-human primate models of Coronavirus infection.

APPLICATIONS

These methods of treatment bring the field closer to adressing these emerging infections. The identification of these pharmaceutical classes of drugs with antiviral activity against Coronavirus may encourage and expedite the development of therapeutics for Coronaviral infections. Their diverse mechanisms of action can also help identify novel therapeutic targets and strategies not only against Coronaviruses, but potentially against viruses with similar pathogenesis.

ADVANTAGES

Identified novel pharmacological classes with antiviral activity against Coronavirus

STAGE OF DEVELOPMENT

This technology has been tested *in vitro* and *in vivo* in rodent and non-human primate models of SARS and/or MERS Coronaviral infection.

(As of 5/2/17)- MEW

LICENSING POTENTIAL

Available for licensing

Available for sponsored research

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PATENT STATUS

US 2017/0027975 A1 WO 2015/157223 A2

LICENSE STATUS

Available for licensing; Available for sponsored research

CATEGORIES

- Therapeutics
- Small molecules
- Chemicals
- Repurpose Drug

INVESTIGATOR(S)

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ATTACHMENTS

- Download MF-2014-090 Market Sheet 5-2-17 FINAL.pdf

EXTERNAL RESOURCES

- Screening of FDA-Approved Drugs for Treatment of Emerging Pathogens

MF-2014-090