

Drug repurposing for COVID-19 using explainable machine learning and mechanistic models of signal transduction circuits related to SARS-CoV-2 infection with real world data validation

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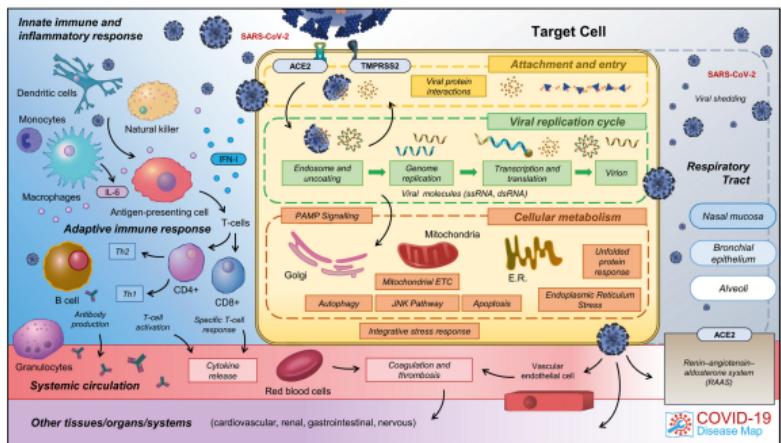
Knowledge discovery

Living Contradiction is a fascinating, honest examination of that genuine contradiction faced by teachers in reconciling the effort made to encourage young people towards independent critical thinking, with the simultaneous sense of responsibility to instruct and insist on a particular behavior.

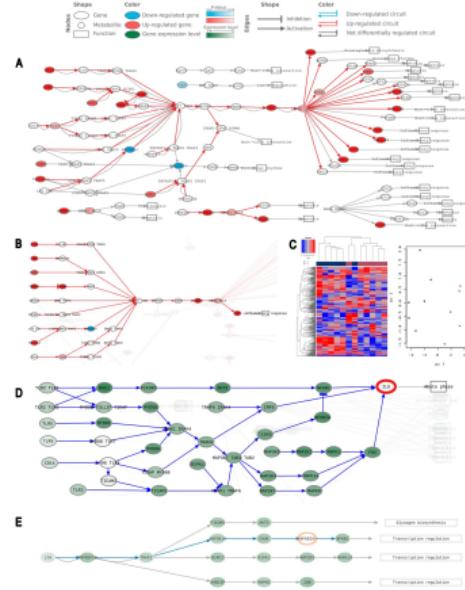
Trustworthiness

The **WHY** is as important as the **WHAT**

Building a COVID-19 Disease Map



COVID-19 Disease Map¹

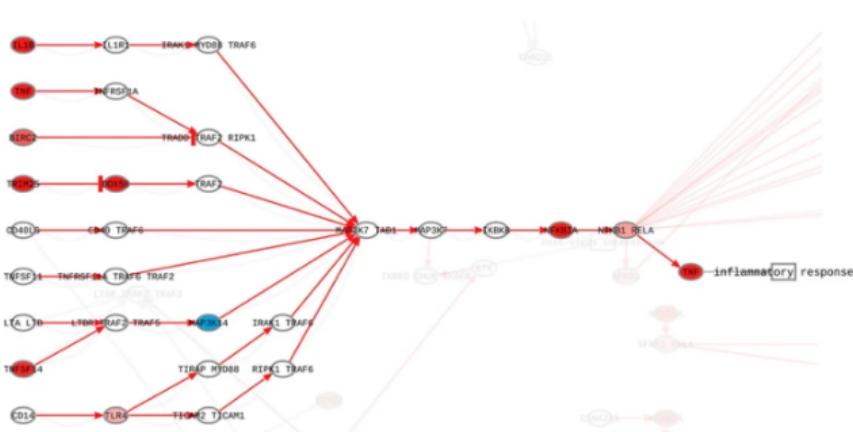


(Simplified) COVID-19 Disease Map²

¹ Marek Ostaszewski et al. (2021). "COVID19 Disease Map, a computational knowledge repository of virus–host interaction mechanisms." In: *Molecular systems biology* 17.10, e10387

² Kinza Rian et al. (2021). "Mechanistic modeling of the SARS-CoV-2 disease map." In: *BioData Mining* 14.1, pp. 1–8

Mechanistic modeling



High throughput estimation of functional cell activities reveals disease mechanisms and predicts relevant clinical outcomes

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 Oncotarget, 2017; 8:5160-5178. <https://doi.org/10.18637/oncotarget.14107>

Metrics: PDF 1955 views | HTML 4565 views

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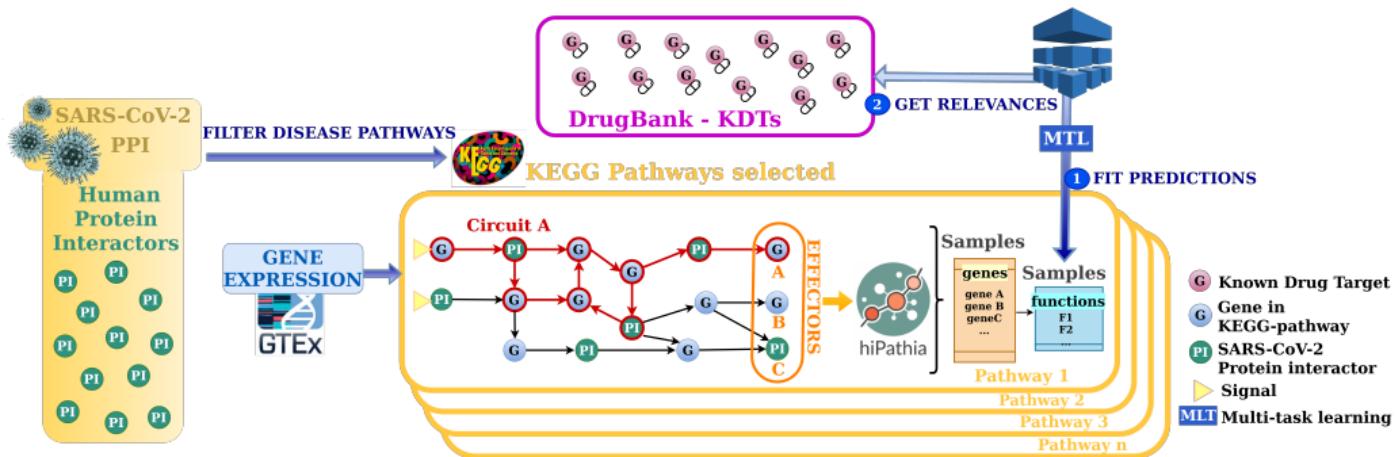
Joaquín Dopazo, email: jdopazo@cinf.es

Keywords: signaling pathway, disease mechanism, prognostic, survival, biomarker

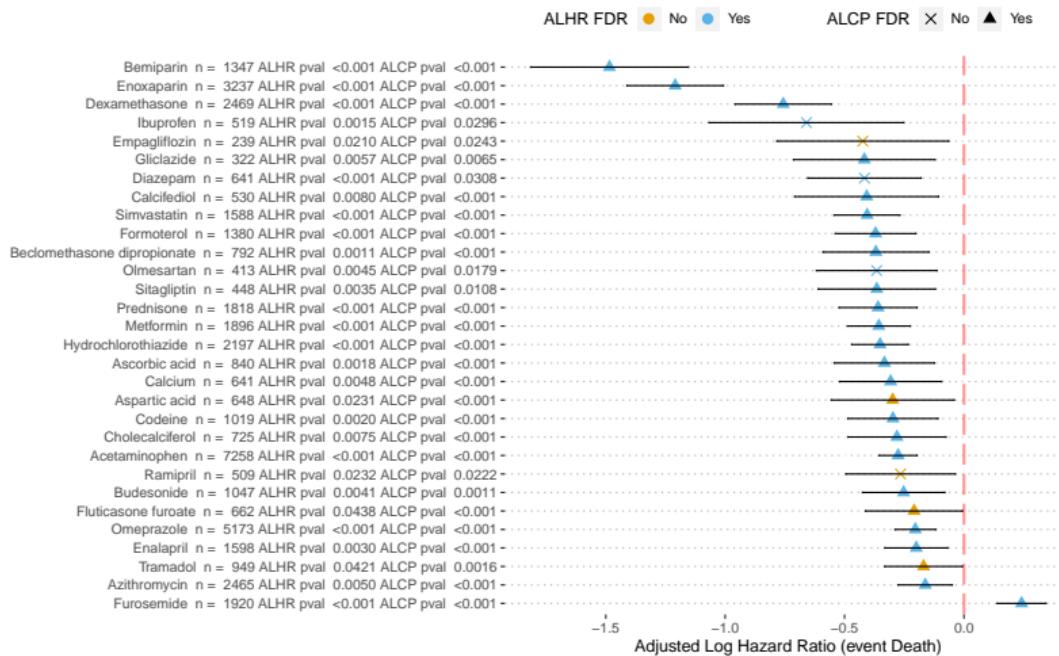
Received: September 01, 2016 Accepted: November 21, 2016 Published: December 22, 2016

$$S_n = v_n \left(1 - \prod_{s_a \in \mathcal{A}} (1 - s_a) \right) \prod_{s_i \in \mathcal{I}} (1 - s_i)$$

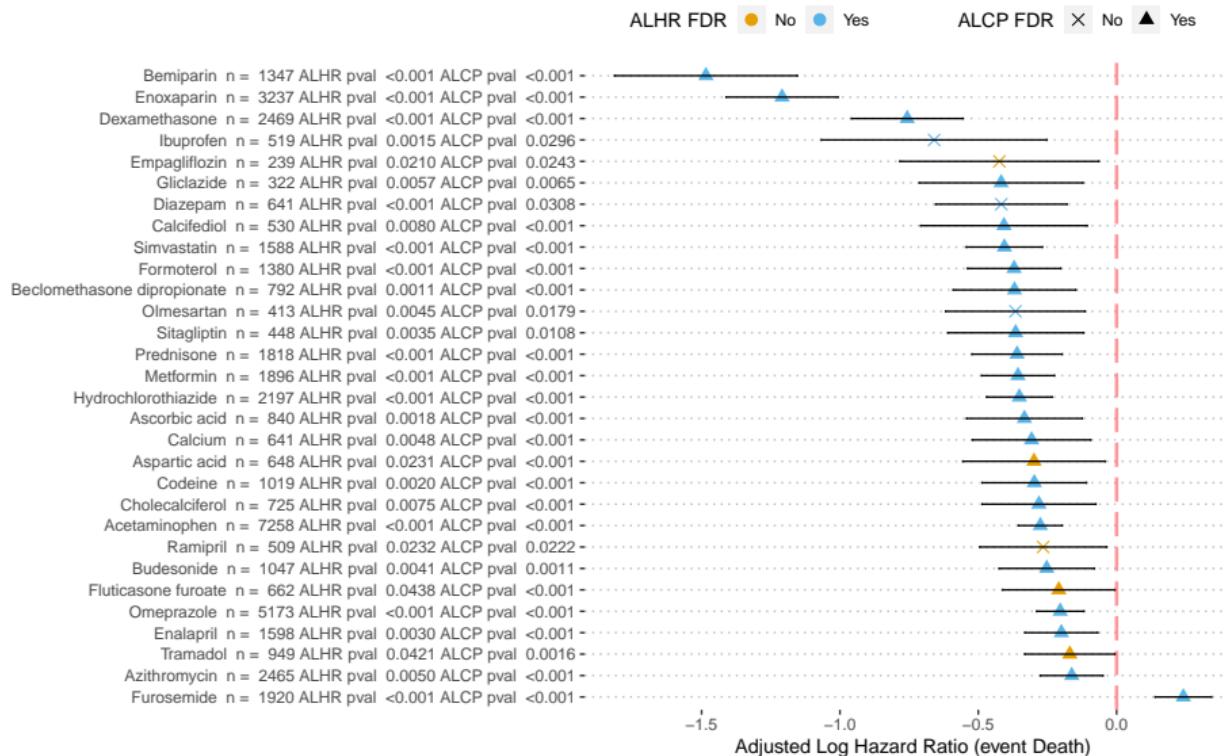
Drug repurposing schema



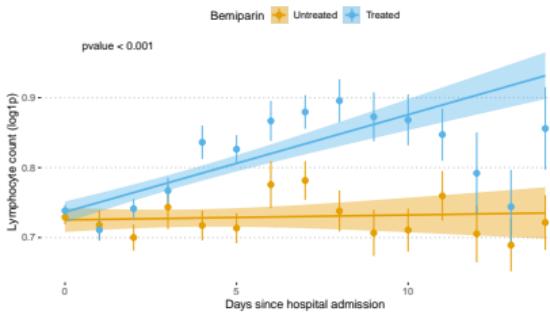
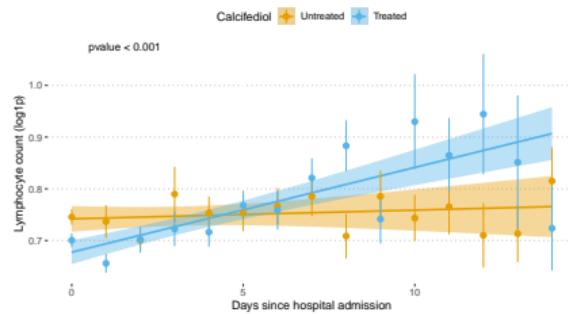
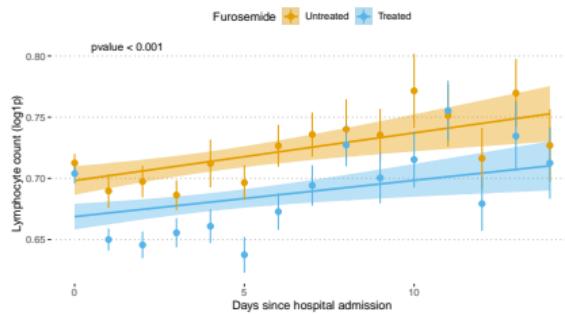
Covariate-Adjusted LHR by Treatment



Covariate-Adjusted LHR by Treatment



Covariate-Adjusted Lymphocyte trend



Thank You!

Personal funding. Contact: carlos.loucera@juntadeandalucia.es



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