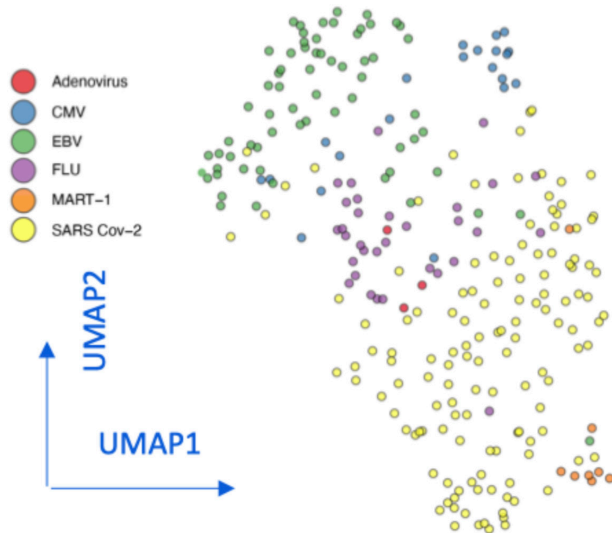UMAP visualization revealed a phenotypic profile of SARS-CoV-2-specific CD8 T cells in COVID-19 convalescent donors that is distinct from other viral specificities, such as influenza, CMV, EBV and Adenovirus.

SARS-CoV-2 epitope screening revealed CD8+ T cell responses directed against both structural and non-structural viral proteins, with the highest magnitude response against nucleocapsid derived peptides
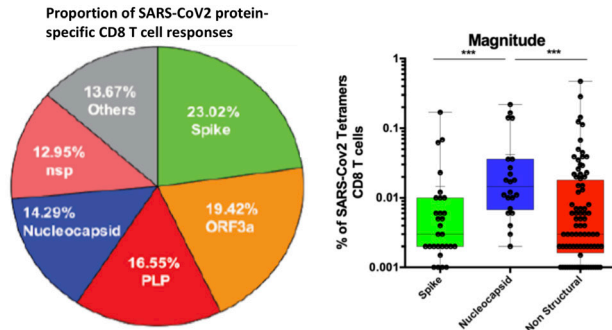
Conclusion. The kinetics modeling demonstrates a dynamic, evolving immune response characterized by a time-dependent decrease in overall inflammation, increase in neutralizing antibody titer, and progressive differentiation of a broad SARS-CoV-2 CD8 T cell response. It could be desirable to aim at recapitulating the hallmarks of this robust CD8 T cell response in the design of protective COVID-19 vaccines.

Disclosures. **Hassen Kared, PhD**, ImmunoScape (Shareholder) **Alessandra Nardin, DvM**, ImmunoScape (Shareholder) **Hermi Sumatoh, BSc, Dip MTech,** ImmunoScape (Shareholder) **Faris Kairi, BSc**, ImmunoScape (Shareholder) **Daniel Carbajo, PhD**, ImmunoScape (Shareholder) **Brian Abel, PhD, MBA**, ImmunoScape (Shareholder) **Evan Newell, PhD**, ImmunoScape (Shareholder)

LB-19. Association between contract staffing and reported outbreaks of SARS-CoV-2 in a cluster-randomized trial of 965 U.S. nursing homes.

Kevin McConeghy, Pharm.D.[1]; H. Edward Davidson, PharmD, MPH[2]; Lisa Han, MPH[2]; Elie Saade, MD, MPH[3]; David Canaday, M.D.[3]; Vincent Mor, Ph.D.[4]; [1]COIN-LTSS, Providence Veterans Affairs Medical Center, Providence, Rhode Island; [2]Insight Therapeutics, LLC, Norfolk, Virginia; [3]University Hospitals of Cleveland, Cleveland, Ohio; [4]Brown University, School of Public Health, Providence, Rhode Island

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Background. Nursing home residents account for 45% SARS-CoV-2 related deaths in the U.S. but only 0.6% of the population. Our research group conducted a large pragmatic cluster randomized influenza vaccine trial in 965 nursing homes (NCT03965195). Due to the pandemic and its impact after the influenza season, we prospectively collected reports of SARS-CoV-2 outbreaks and performed a prospective study on the association between contract staffing and reported outbreaks of SARS-CoV-2. We hypothesized those using more contract nursing care would have higher risk of an outbreak.

Methods. From February through April, we collected monthly facility-level, self-reported data on SARS-CoV-2 outbreaks. Facility characteristics were taken from public data from Centers for Medicaid and Medicare services. Predictors of SARS-CoV-2 outbreaks were identified using a LASSO variable selection procedure, with a generalized linear, Poisson family model. Facility characteristics evaluated include demographics (e.g. number of residents), influenza vaccination rates, quality measures (e.g. % with UTI), and functional status (e.g. % with tube feedings). Facilities with contract staffing hours in the upper 25% quantile of direct care (RN, LPN, CNA) were considered 'heavy use'.

Results. Of 965 randomized NHs, 663/965 (69%) reported data on SARS-CoV-2 outbreaks. On average, 13% of facilities had at least one outbreak, with 5/842 (0.5%) outbreaks in February, 91/835 (10.8%) in March and 217/686 (30%) in April. SARS-CoV-2 (+) facilities were larger (average total beds, 151 vs. 117), but were mostly similar by functional and cognitive status. Occupancy rate, total residents, Influenza vaccination rate, % with UTI, receiving respiratory treatments, tube feedings, and Medicaid payers were adjusted for in the analysis. The 'heavy use' of contract staffing included those with >223 hours per quarter. A multivariable regression found the relative risk SARS-CoV-2 outbreak was 1.56 (95% Confidence Interval: 1.22, 1.99) with heavy use of contract staffing.

Conclusion. The participating nursing homes in our vaccine trial with SARS-CoV-2 outbreaks were larger. Our study highlights that heavy use of contract staffing was associated with 56% increased risk of an outbreak.

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