Washington University in St. Louis
Office of Technology Management

ELISPOT ASSAY TO IMMUNE PHENOTYPE PATIENTS

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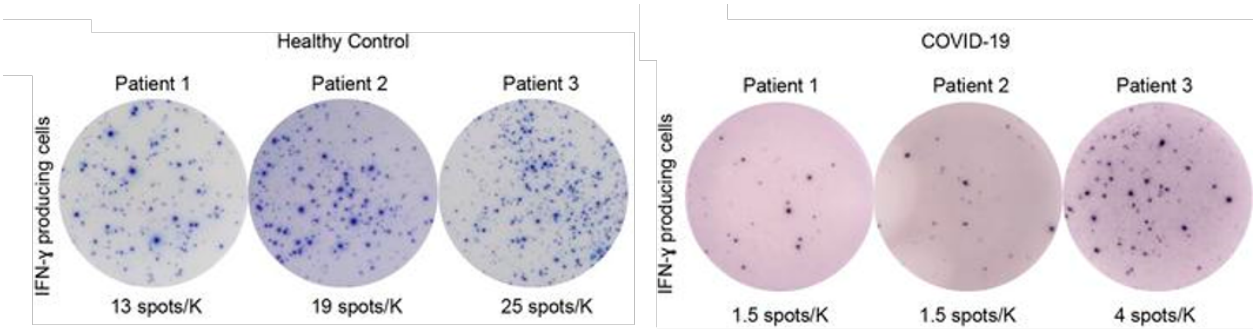
Technology Description

A team of researchers, led by Richard Hotchkiss at Washington University in St. Louis, have developed a version of the ELISpot assay to determine if COVID-19 patients are in a hyper-inflammatory or immunosuppressed state. The results of this assay, which can be performed with whole blood, are used to inform a more successful treatment plan.

While some COVID-19 patients suffer from cytokine storm due to an overactive immune system, this team of researchers has recently shown that another subset of patients see unrestrained viral infection due to a failure of host immunity. Those two subsets require polar opposite supportive treatments, so physicians need an assay to rapidly determine the immune status of the patient.



Stage of Research

The inventors developed a version of the ELISpot capable of using diluted whole blood and validated it on a sample of 127 patients, including 27 hospitalized with COVID-19.

Publications

- Remy KE, Mazer M, Striker DA, Ellebedy AH, … Hotchkiss RS. (2020). Severe immunosuppression and not a cytokine storm characterizes COVID-19 infections. *JCI Insight*, 5(17): e140329.

Applications

- Aid treatment planning in COVID-19 patients

Key Advantages

- Uses diluted whole blood
- Differentiates patients in hyper- and hypo-inflammatory states for more effective treatment planning

Patents: Pending

Related Web Links: Hotchkiss Profile & Lab; Turnbull Profile; Mazer Profile