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Rapidly Assessing Severity of SARS-CoV-2 (COVID-19) via a Small Blood Volume Diagnostics device, InnovaStrip for Kidney Function and Hemorrhage using Blood, Plasma and Serum Electrolytes and Metals LAUREN PUGLISI, NIKHIL SURESH, THILINA BALASOORIYA, WESLEY PENG, AASHI GUIJALA, SRIVATSAN SWAMINATHAN, MOHAMMED SAHAL, ABBIE ELISON, RILEY RANE, KARISHMA SIVAKUMAR, VISWESHWAR SWAMINATHAN, Microdrop Diagnostics, LLC, ERIC CULBERTSON, Ronald Reagan UCLA Medical Center, ROBERT CULBERTSON, Arizona State University, NICOLE HERBOTS, Microdrop Diagnostics, LLC — Comprehensive Blood Diagnostics (BD) and biomarkers of susceptibility (BoS) are needed for effective care and use of beds, during pandemics, e.g. SARS-CoV-2 (COVID-19). This work developed a comprehensive, fast, accurate, small volume BD device InnovaStrip [1], using only micro-L sized blood drops. InnovaStrip solidifies in mins drops into uniform, Homogeneous Thin Solid Films (HTSFs) without coagulation. Super -Hydrophilic coatings, SH HemaDrop [1] yield large area HTSFs with separate blood, plasma and serum regions. Specific electrolytes and metals are measured for each via Ion Beam Analysis (IBA), and X-ray Fluorescence (XRF). Protein based BoS can be quantified via Solid State Nuclear Magnetic Resonance (ssNMR) analysis. Compositions are compared at different depths, to establish HTSF regions homogeneity, minimum blood drop volume and surface areas to ensure accuracy and reproducibility. The relative combined error obtained by statistical analysis of blood HTSFs is within +/- 10%, the medical standard. [1] Puglisi, Rane and Herbots, Pat.Pend. (2020)

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