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Mid-IR Spectroscopy of Dried Serum Samples: An Application for Colitis Prescreening[1] HEMENDRA GHIMIRE, KELUM PERERA, A. G. UNIL PERERA, Georgia State Univ — At present, colonoscopy/ileoscopy and small bowel follow through are considered as gold standard for IBD tests. Despite their unequivocal benefit for the IBD tests, compliance rates of eligible population for prescreening is very small due to discomfort, expense, and risk of complications. Developing a minimally invasive and cost-effective prescreen strategy is thus critical. We present ATR-FTIR spectroscopy of serum with appropriate data handling frameworks can be used for reliably screen experimental colitis. The study on experimental colitis models: interleukin 10 knockout mouse, and dextran sodium sulfate-induced of colitis mouse while employing collagen-induced arthritis models, TLR-5 knockout models of metabolic diseases as control, emphasizes the diagnostic potential of this technique for the prescreening. Absorbance values of the different spectral bands, hierarchical clustering and integral values of the component bands by curve fitting, show significant differences (p-value <0.05) between spectra representing control and colitis mice. The preliminary result hints us the potential application of technique while diagnosing ulcerative colitis and Crohn's Disease and to monitor during treatment.

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