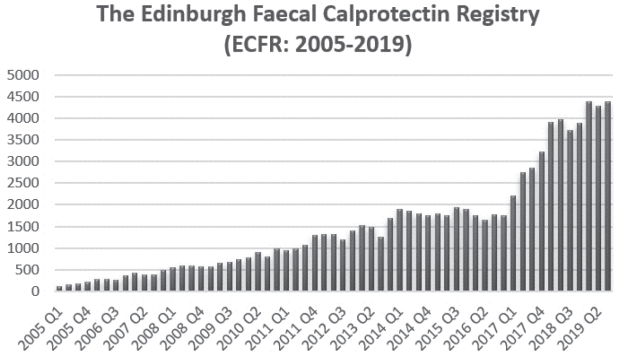

Abstract P155 Figure 1

The FC registry was merged with the prevalent cases in the LIBDR (N=7051). 5291 (75%) of these have had at least one FC measurement at any time point (median 4 FC assays per patient). Over the last 5 years, those patients under active follow-up (defined as 1 clinic appointment in secondary care between 1/1/14 and 1/8/18) had an average of 2 FC results per year.

Conclusions The Edinburgh FC Registry demonstrates the increasing demand over time for FC measurements in diagnosing IBD with the impact of primary care test clearly shown. In established IBD the time trends analysis demonstrates the deployment of treat-to-target in the clinic over almost a decade.

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P156 THE INFLAMMATORY BOWEL DISEASE (IBD) BIORESOURCE: FOCUS ON THE INCEPTION COHORT

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Introduction The IBD BioResource was established by the UK IBD Genetics Consortium and the NIHR BioResource in 2016 to expedite the clinical translation of recent genetics advances. It aimed to recruit >25,000 patients across hospitals UK-wide and comprises two cohorts: the Main cohort which focuses on patients with established IBD, and the Inception cohort which is dedicated to patients newly diagnosed with IBD. The Main cohort has recruited >32,000 patients so far. Owing to the detailed sampling of the Inception cohort and lack of confounding by medication or disease chronicity, it offers a unique resource to undertake 'omics' studies and enable research into determinants, predictors and biomarkers of IBD disease course and treatment response

Methods The Inception goal is to enrol 1,000 individuals who are new to their IBD diagnosis. Both clinical and self-reported phenotype data are collected, alongside detailed samples including whole blood for serum, plasma, DNA and RNA, stool and biopsy tissue. Samples are obtained following consent and then subsequently at first remission and first flare. Clinical data is recorded at all sample collection time-points and at 12, 24 and 36 months post diagnosis.

Results Inception has been up and running fully since March 2018 and >60 hospital sites have been trained to identify and recruit patients to this cohort. Recruitment has reached ~35% of the 1,000 patient target with the panel currently consisting of 40% Crohn's, 49% ulcerative colitis and 11% as IBDU or under further investigation. Of the patients recruited 34% have returned a baseline stool sample and 16% have had a biopsy collected at the time of diagnosis. Of all the patients recruited 23% have gone on to have samples collected at first remission and 3% at first flare. There is 92% clinical data entry at baseline. Due to the complexity of this cohort, recruitment to Inception has been challenging. Issues include staff time and capacity at recruiting sites, identifying recruitment paths and recruiting patients at the right time, capturing patients at remission and flare, involvement of clinicians to aid with the interpretation and capture of the required clinical information and patient compliance with the longitudinal protocol.

Conclusion Progress with the Inception cohort of the IBD BioResource continues and recruitment is gaining momentum. The use of this valuable resource must be the next phase of its life and the lessons and skills learnt along the way transferred to benefit the set-up of other complex and large scale common disease cohorts.

P157 RAMAN SPECTROSCOPY CAN DIFFERENTIATE MUCOSAL HEALING FROM NON-HEALING IN INFLAMMATORY BOWEL DISEASE

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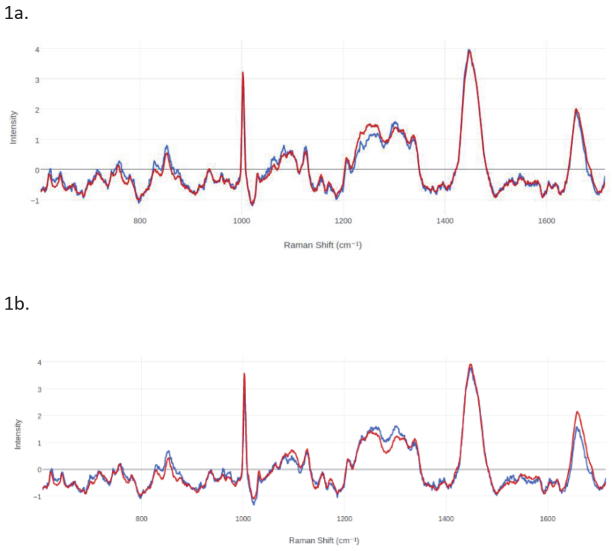
Introduction Mucosal healing (MH) is a key treatment target in the management of inflammatory bowel disease (IBD), and is defined in endoscopic terms by the newly published PICaSSO score. Raman Spectroscopy is based on the scattering of inelastic light giving spectra that are highly specific for individual molecules. Our aim was to establish if Raman Spectroscopy is able to accurately differentiate between inflammation and MH.

Methods Biopsies were taken for *ex vivo* Raman Spectroscopy analysis alongside biopsies for histological analysis from IBD patients undergoing optical diagnosis endoscopic assessment. MH was defined as: PICaSSO score ≤3 and UCEIS ≤1 and RHI score of ≤3 in UC and SES-CD score ≤2 and modified Riley score of 0 in CD.

For spectral analysis we used artificial neural networks and a supervised learning model to build predictive modelling.

Results A total of 57 patients (29 UC/28 CD) were included giving 5700 Raman Spectra. Spectral differences were seen between MH and active inflammation. MH was associated with decreases at 1001 cm^{-1} and 1249 cm^{-1} in UC and CD and increases at 1304 cm^{-1} in UC and CD. The trained neural network was able to differentiate MH from active inflammation with a sensitivity, specificity, PPV, NPV and accuracy in



Abstract P157 Figure 1 Self-organising map discriminant index of healing (blue) vs. non-healing (red) in UC (a) and CD (b) demonstrating extracted spectral feautres

UC of 93.9%, 99.2%, 99.3%, 93.6% and 96.4% and 93.5%, 98.0%, 98.1%, 93.1% and 95.6% in CD respectively.

1a.

1b.

Conclusions We have demonstrated that Raman Spectroscopy can accurately differentiate MH from active inflammation in UC and CD and might be a future tool to direct precise therapeutic management in IBD.

P158 RAMAN SPECTROSCOPY DEMONSTRATES BIOMOLECULAR CHANGES AND PREDICTS RESPONSE TO BIOLOGICAL THERAPY IN INFLAMMATORY BOWEL DISEASE

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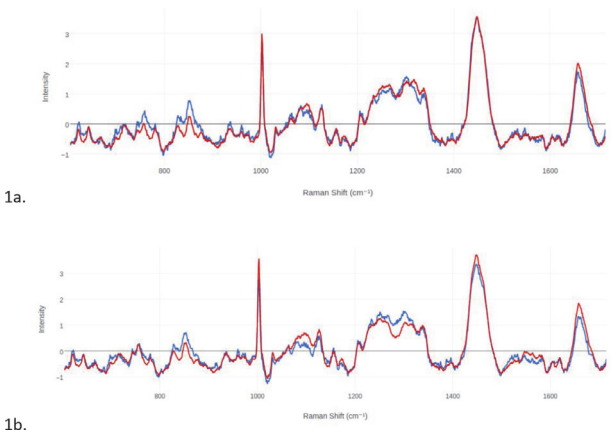
10.1136/gutjnl-2020-bsgcampus.233

Introduction Biological therapy in the management of IBD is increasing however, response rates remain modest. Raman Spectroscopy describes the scattering of inelastic light giving spectra that is highly specific for individual molecules revealing tissue biochemistry. Our aim was to establish spectral changes in IBD following biological and whether Raman Spectroscopy can predict response to biological therapy.

Methods IBD patients who underwent endoscopic assessment pre- and 12 weeks post-biological therapy were recruited. Biopsies were taken for *ex vivo* Raman Spectroscopy analysis alongside biopsies for histological analysis. Response to treatment was defined when both a reduction in the endoscopic score of activity (UCEIS for UC and SES-CD for CD) and histological healing (defined as Nancy (0–1) in UC and modified Riley (0) in CD) was present. For spectral analysis we used artificial neural networks and a supervised learning model to demonstrate spectral differences and build predictive



Abstract P158 Figure 1 Self-organising map discriminant index of pre-and post-biological spectra of UC (a) and CD (b) demonstrating extracted spectral features

modelling, based on an 80:20% (network training: network testing) split of the data.

Results A total of 1800 Raman Spectra (18 patients-7 UC/11 CD) were analysed. Using data projection, there is clear separation between responder (3 UC and 3 CD) and non-responders (4 UC and 8 CD). The key spectral differences between pre- vs. post-biologic in responders are demonstrated using feature extraction (figure 1a & 1b). There was an increase at 1302 cm^{-1} after biological therapy and when healing was achieved, which may indicate a potential biomarker of healing.

When comparing the pre-biological spectra, a machine learning algorithm is able to differentiate between responders from non-responders with a sensitivity, specificity, NPV and accuracy of 100.0% (95% CI 93.5–100.0), 92.3% (95% CI 83.0–97.5), 100.0% and 95.8% (95% CI 90.5–98.6) respectively in UC and CD.

Conclusion We have demonstrated changes in response to biological therapy and a potential biomarker for mucosal healing using Raman Spectroscopy, and can differentiate responders from non-responders in IBD. Using this modelling there is a potential to predict response to biological therapy, however prospective prediction will not need to take place before clinical application. To our knowledge, this is the first study demonstrating these changes.

P159 IMPACT OF FAECAL INCONTINENCE ON HEALTH RELATED QUALITY OF LIFE IN INFLAMMATORY BOWEL DISEASE PATIENTS

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Introduction To analyze the frequency and severity of faecal incontinence (FI) and its effect on the quality of life (QOL) in inflammatory bowel disease (IBD) patients.

Methods All patients who attended surgical and medical gastroenterology outpatient clinics in a tertiary care center with an established diagnosis of either ulcerative colitis (UC) or Crohn's disease (CD) over a period of 10 months