IBDetect™
RNA-based diagnosis of inflammatory bowel disease

A quick and cost-effective route to accurate diagnosis of ulcerative colitis and Chron’s disease

**Prediction performance**

<table>
<thead>
<tr>
<th></th>
<th>Ulcerative colitis</th>
<th>Crohn’s disease</th>
<th>Control subjects</th>
<th>Overall accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accuracy</td>
<td>90%</td>
<td>80%</td>
<td>85%</td>
<td>87%</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>90%</td>
<td>85%</td>
<td>80%</td>
<td>82%</td>
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<tr>
<td>Specificity</td>
<td>90%</td>
<td>80%</td>
<td>85%</td>
<td>82%</td>
</tr>
</tbody>
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**Unique Selling Point**

IBDetect™ combines qPCR and machine learning technology to diagnose Inflammatory bowel disease patients. It is ideal for the construction of a ready-to-use diagnostic kit.

- It is cheap and easy to implement – qPCR equipment is already widely available at hospitals
- It is quick to use – analysis can be completed within the same time frame as histological examination
- It can increase the quality of IBD treatment without burdening the patient

**Technology Description**

IBDetect™ uses quantitative polymerase chain reaction (qPCR) to determine the relative expression of 35 specific RNA markers in biopsies from the large intestine. The qPCR data is analyzed by a machine learning algorithm which can predict the diagnosis – UC, CD or non-IBD – with an overall accuracy of 90%.

**Objective**

IBD is a chronic disorder of the human gut, affecting 1 in 250 Europeans. The main types of IBD, ulcerative colitis (UC) and Crohn’s disease (CD), require different pharmaceutical and/or surgical treatments. Diagnosis is based on visual examination of the gut and histological examination of gut biopsies. Diagnosis is difficult: about 15% of patients are not classifiable, and the initial diagnosis is often wrong, which leads to additional costs for the healthcare provider and may harm the patient. Molecular methods to increase the certainty of diagnosis, like IBDetect™ are needed.

**Current State**

IBDetect™ is tested on a total of 269 subjects. In total 3 cohorts was used. Two of these were independent from the one the IBDetect was model on.

The overall accuracy was ≥90%. For ulcerative colitis the performance on all tree parameters, accuracy, specificity and sensitivity was 90%.

**The Inventors**

- Ass. professor Jette Borinholt Lange
- Professor Aboin Sandelin
- Overlæge, professor Ole Haagen Nielsen
- Overlæge Jacob Wium Bjerrum
- Ph.D bioinformatics Kristoffer Witting Seerup

and Ph.D. Mette Boyd, Ph.D. Morana Vitezic, Ph.D. Malte Thodberg.

**Contact Information**

Maj Britt Larsen, MSc, PhD
Senior Commercial Officer
Tel: +45 35336387 / +45 23206322
majbritt.larsen@adm.ku.dk

**Seeking**

Partner for clinical development into a diagnostic kit, and commercialization