NON-CELIAC GLUTEN/WHEAT SENSITIVITY: GUT MICROBIOME AS A DIAGNOSTIC TOOL AND THERAPEUTIC TARGET

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A shotgun metagenomic study identified Clostridiaceae bacterium (SGB47672) as a potential diagnostic biomarker for non-celiac gluten/wheat sensitivity and found that gluten-free diet reduces Bifidobacterium longum abundance.

KEY POINTS

- Twenty-eight NCG/WS patients, 11 celiac disease patients, and 37 healthy controls were enrolled; stool microbiome was analyzed at baseline and after 3, 7, 30, and 200 days of gluten-free diet.
- Clostridiaceae bacterium (SGB47672) showed lower abundance in NCG/WS versus controls ($q<0.2$), confirmed in validation cohorts of 172 NCG/WS and 243 celiac disease patients, suggesting potential as a diagnostic biomarker.
- Alpha-diversity was comparable among groups at baseline and remained preserved during gluten-free diet, while beta-diversity differed significantly among groups ($p=0.026$).
- Gluten-free diet was associated with a reduction in Bifidobacterium longum (SGB17248) relative abundance ($q<0.2$; $p<0.05$) across patient groups.
- The authors suggest that probiotic supplements containing Bifidobacteria may help restore B. longum deficiency during gluten-free diet and contribute anti-inflammatory and barrier-protective effects.

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