**ABSTRACT SUBMISSION**

**Title:** Diet and hydrogenotrophic microbiota distinguish native Africans from Caucasian and African Americans

**Abstract**

Compared to other U.S. racial or ethnic groups, African Americans (AA) have the highest incidence and mortality from sporadic colorectal cancer (CRC), which is the second leading cause of cancer death in Western countries. In contrast, native Africans (NA) are rarely diagnosed with the disease. Reduced susceptibility to CRC in NA is associated with low consumption of animal products and greater microbial production of colonic methane. Two hydrogenotrophic microbial groups are responsible for the disposal of colonic hydrogen; methanogenic Archaea utilizing H₂ to produce methane and sulfate-reducing bacteria (SRB) generating hydrogen sulfide, which has been linked with chronic inflammatory disorders of the colon. In the present study, stool samples from NA, who were consuming a diet low in animal products, and from AA and Caucasian Americans (CA), both consuming a typical Western diet, were examined for diversity of SRB and methanogens. PCR-based methods targeting 16S rRNA genes and the functional genes, dissimilatory sulfite reductase (dsrA) for SRB and methyl-coenzyme M reductase (mcrA) for methanogens, combined with inferential and multivariate statistical analyses, revealed that SRB populations in NA were more homogenous than in AA and that SRB communities in NA were distinguishable from both those in AA and CA. In addition, NA and AA harbored different Archaea populations than CA. These observations are consistent with the hypothesis that interactions among racial background, diet and microbial mechanisms of H₂ disposal may influence susceptibility to CRC.

**Approval**

Confirm

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**Categories**

1 Gut Microbial Communities – Phylogeny, Genomics and Function

3 Microbial Activities in the Gut

**Presentation**

Poster

**Permission**

Yes

**Website**

Yes

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