Table S4 Synthetic DNA sequences (sDNA) for the experimental validation

The following representative synthetic double-stranded DNA (sDNA) gene blocks were synthesized for the 28 taxa in the target list. These sDNA sequences were run through the clinical pipeline to validate accurate and quantitative detection.

Target	sDNA sequence
Akkermansia muciniphila SILVA ID: AY271254.1.1433	TTCGGATTGTAAACCCCTGTCATGTGGGAGCAAATTAAAAAGATAGTACCACAAGAGGAAGAGAC GGCTAACTCTGTGCCAGCAGCCGCGGTAATACAGAGGTCTCAAGCGTTGTTCGGAATCACTGGG CGTAAAGCGTGCGTAGGCTGTTTCGTAAGTCGTGTGTGAAAGGCGCGGGCTCAACCCGCGGAC GGCACATGATACTGCGAGACTAGAGTAATGGAGGGGGAACCGGAATTCTCGGTGTAGCAGTGAA ATGCGTAGATATCGAGAGAACACTCGTGGCGAAGGCGGGTTCCTGGACATTAACTGACGCTGA GGCACGAAGGCCAGGGGAGCCAAAGGGATTAGATACCCCTGTAGTCCTGGCAGTAAACGGTGC ACGCTTGGTGCCGGAATCGACCCCCTGCGTGCCGAGTAACGCGTTAAGCGTGCCG
Alistipes SILVA ID: AB554232.1.1488	TGCTTTTGTACGAGGGTAAACGCAGATACGTGTATCTGTCTG
Anaerotruncus colihominis SILVA ID: AJ315980.1.1393	CGGTCTTCGGATTGTAAACCTCTGTCTTTGGGGAAGAAAATGACGGTACCCAAAGAGGAAGCTC CGGCTAACTACGTGCCAGCAGCCGCGGTAATACGTAGGAGCAAGCGTTGTCCGGAATTACTGG GTGTAAAGGGAGCGTAGGCGGGATGGCAAGTAGAATGTTAAATCCATCGGCTCAACCGGTGGCT GCGTTCTAAACTGCCGTTCTTGAGTGAAGTAGAGGCAGGC
Bacteroides fragilis SILVA ID: X83936.1.1436	TTCTTTTATATAAGAATAAAGTGCAGTATGTATACTGTTTTGTATGTA

Barnesiella SILVA ID: AB370251.1.1484	CTCTTTTGTCGGAGAGTAAAGTACGCTACGTGTAGCGTATTGCAAGTATCCGAAGAAAAAGCATCGGCTAACTCCGTGCCAGCAGCCGCGGTAATACGGAGGATGCGAGCGTTATCCGGATTTATTGGGTTTAAAGGGTGCGTAGGCGGCACGCCAAGTCAGCGGTGAAATTTCCGGGCTCAACCCGGAGTGTGCGTTGAAACTGGCGAGCTAGAGTACACAAGAGGCAGGC
Bifidobacterium SILVA ID: AY305304.1.1448	GGTTGTAAACCGCTTTTGACTGGGAGCAAGCCCTTCGGGGTGAGTGTACCTTTCGAATAAGCAC CGGCTAACTACGTGCCAGCAGCCGCGGTAATACGTAGGGTGCAAGCGTTATCCGGAATTATTGGG CGTAAAGGGCTCGTAGGCGGTTCGTCGCGTCCGGTGTGAAAGTCCATCGCTTAACGGTGGATCC GCGCCGGGTACGGGCGGGCTTGAGTGCGGTAGGGGAGACTGGAATTCCCGGTGTAACGGTGG AATGTGTAGATATCGGGAAGAACACCAATGGCGAAGGCAGGTCTCTGGGCCGTCACTGACGCTG AGGAGCGAAAGCGTGGGAACAGGATTAGATACCCTGGTAGTCCACGCCGTAAACGGTG GATGCTGGATGTGGGGAACCATTCCACGGTCTCCGTGTCGGAGCCAACGCGTTAAGCATCC
Butyrivibrio crossotus SILVA ID: ABWN01000012.312.1822	AGTATTTCGGTATGTAAAGCTCTATCAGCAGGGAAGAAAACGACGGTACCTGACTAAGAAGCCCC GGCTAACTACGTGCCAGCAGCCGCGGTAATACGTAGGGGGCAAGCGTTATCCGGATTTACTGGG TGTAAAGGGAGCGTAGACGGCATCACAAGTCAGAAGTGAAAATCCGGGGCTCAACCCCGGAAC TGCTTTTGAAACTGTGGAGCTGGAGTGCAGGAGAGGTAAGCGGAATTCCTAGTGTAGCGGTGAA ATGCGTAGATATTAGGAGGAACACCAGTGGCGAAGGCGGCTTACTGGACTGTAACTGACGTTGA GGCTCGAAAGCGTGGGGAACACAGGATTAGATACCCTGGTAGTCCACGCCGTAAACGATGAA TACTAGGTGTTGGGTTTCATAAGAAGCTCGGTGCCGGCGCAAACGCATTAAGTATTCC
Campylobacter SILVA ID: GU255922.1.1207	ACTTTTCGGAGCGTAAACTCCTTTTGTTAGGGAAGAACAATGACGGTACCTAACGAATAAGCACC GGCTAACTCCGTGCCAGCAGCCGCGGTAATACGGAGGGTGCAAGCGTTACTCGGAATCACTGG GCGTAAAGGACGCGTAGGCGGATTATCAAGTCTCTTGTGAAATCCTATGGCTTAACCATAGAACTG CTTGGGAAACTGATAATCTAGAGTGAGGGAGAGGCAGATGGAATTGGTGGTGTAGGGGTAAAATC CGTAGAGATCACCAGGAATACCCATTGCGAAGGCGATCTGCTGGAACTCAACTGACGCTAATGC GTGAAAGCGTGGGAACCAAACAGGATTAGATACCTGAAAGCGTGAAGCTAACGATGTATACT AGTTGTTGCTAAGCTAGTCTTGGCAGTAATGCACCCTAACGGATTAAGTATACCG
Collinsella aerofaciens SILVA ID: AJ245919.1.1432	CCGGCTAACTACGTGCCAGCAGCCGCGGTAATACGTAGGGGGCGAGCGTTATCCGGATTCATTG GGCGTAAAGCGCGCGTAGGCGGCCCGGCAGGCCGGGGGTCGAAGCGGGGGGCTCAACCCC CCGAAGCCCCCGGAACCTCCGCGGCTTGGGTCCGGTAGGGGAGGGTGGAACACCCGGTGTA GCGGTGGAATGCGCAGATATCGGGTGGAACACCGGTGGCGAAGGCGGCCCTCTGGGCCGAGA CCGACGCTGAGGCGCGAAAGCTGGGGGAGCGAACAGGATTAGATACCCTGGTAGTCCCAGCCG TAAACGATGGACGCTAGGTGTGGGGGACGATCCCCCCGTGCCGCAGCCAACGCATTAAGCGTC CCGCCT

Desulfovibrio piger SILVA ID: KF536745.1.1424	CAGAAGGAAGAAACTAGGGTGTTCTAATCATCATCCTACTGACGGTACCTTCAAAGGAAGCACC GGCTAACTCCGTGCCAGCAGCCGCGGTAATACGGAGGGTGCAAGCGTTAATCGGAATCACTGG GCGTAAAGCGCACGTAGGCTGTATGTAAGTCAGGGGTGAAAGCCCACGGCTCAACCGTGGAA CTGCCCTTGATACTGCACGACTCGAATCCGGGAGAGGGTGGCGGAATTCCAGGTGTAGGAGTG AAATCCGTAGATATCTGGAGGAACATCAGTGGCGAAGGCGGCCACCTGGACCGGTATTGACGCT GAGGTGCGAAAGCGTGGGGAGCAAACAGGATTAGATACCCTGGTAGTCCACGCCGTAAACGATG
Dialister invisus SILVA ID: JN713211.1.1560	GATGCTAGATGTCGGGATGTATGTCTCGGTGTCGTAGTTAACGCGTTAAGCATCCCGCCT ATCCGGGACGAGAAGGCAGGGTGCGAAGAACAAACTGCATTGACGGTACCGGAAAAGCAAGC
Escherichia-Shigella SILVA ID: GZ772340.7303.8824	CAGCGGGAGAAGGAGTAAAGTTAATACCTTTGCTCATTGACGTTACCCGCAGAAGAAGCAC CGGCTAACTCCGTGCCAGCAGCCGCGGTAATACGGAGGGTGCAAGCGTTAATCGGAATTACTGG GCGTAAAGCGCACGCAGGCGGTTTGTTAAGTCAGATGTGAAATCCCCGGGCTCAACCTGGGAA CTGCATCTGATACTGGCAAGCTTGAGTCTCGTAGAGGGGGGGTAGAATTCCAGGTGTAGCGGTGA AATGCGTAGAGATCTGGAGGAATACCGGTGGCGAAGGCGGCCCCCTGGACGAAGACTGACGCT CAGGTGCGAAAGCGTGGGGAGCAAACAGGATTAGATACCCTGGTAGTCCACGCCGTAAACGATG TCGACTTGGAGGTTGTGCCCTTGAGGCGTGGCTTCCGGAGCTAACGCGTTAAGTCGACCG
Fusobacterium SILVA ID: GQ301040.1.1415	TTTTCGGAATGTAAAGTGCTTTCAGTTGGGAAGAAGAAATGACGGTACCAACAGAAGAAGTGACGGCTAAATACGTGCCAGCAGCCGCGGTAATACGTATGTCACGAGCGTTATCCGGATTTATTGGGCGTAAAGCGCGTCTAGGTGGTTATGTAAGTCTGATGTGAAAATGCAGGGCTCAACTCTGTATTGCGTTGGAAACTGTATAACTAGAGTACTGGAGAGGTAAGCGGAACTACAAGTGTAGAGGTGAAATTCGTAGATTTTGTAGGAATGCCGATGGGGAAGCCAGCTTACTGGACAGATACTGACGCTGAAGCGCGAAAGCGTGGGGAACTACAGGTGAAACGATGATTACTAGGTGTTGGGGGTAGCAAACAGGATTAGATACCCTGGTAGTCCACGCCGTAAACGATGATTACTAGGTGTTGGGGGTCGAACCTCAGCGCCCAAGCAAACGCGATAAGTAATCCGCCT
to the sum of SILVA genera	AGTATTTCGGTATGTAAAGCTCTATCAGCAGGGAAGAAAATGACGGTACCTGACTAAGAAGCCCCGGCTAACTACGTGCCAGCAGCGCGCGGTAATACGTAGGGGGCAAGCGTTATCCGGATTTACTGGGTGTAAAAGGGAGCGTAGACGCATGGCAAGCCAGATGTGAAAGCCCGGGGCTCAACCCCGGGACTGCATTTGGAACTGTCAGGCTAGAGTGTCGGAGAGGAAAGCGGAATTCCTAGTGTAGCGGTGAAATGCGTAGATATTAGGAGGAACACCAGTGGCGAAGGCGGCTTTCTGGACGATGACTGAC

Lactobacillus SILVA ID: EF533990.1.1531	TGGTAGTGAAGAAAGATAGAGGTAGTAACTGGCCTTTATTTGACGGTAATTACTTAGAAAGTCACG GCTAACTACGTGCCAGCAGCCGCGGTAATACGTAGGTGGCAAGCGTTGTCCGGATTTATTGGGC GTAAAGCGAGTGCAGGCGGTTCAATAAGTCTGATGTGAAAGCCTTCGGCTCAACCGGAGAATTG CATCAGAAACTGTTGAACTTGAGTGCAGAAGAGGAGAGTGGAACTCCATGTGTAGCGGTGGAAT GCGTAGATATATGGAAGAACACCAGTGGCGAAGGCGGCTCTCTGGTCTGCAACTAACGCTGAGG CTCGAAAGCATGGGTAGCGAACAGGATTAGATACCCTGGTAGTCCATGCCGTAAACGATGAGTGC TAAGTGTTGGGAGGTTTCCGCCTCTCAGTGCTGCAGCTAACGCATTAAGCACTCC
Methanobrevibacter smithii SILVA ID: U55235.1.1357	TCCCAAGTGCCATTCTTAACGGGATGGCTTTTCATTAGTGTAAAGAGCTTTTGGAATAAGAGCTGG GCAAGACCGGTGCCAGCCGCCGCGGTAACACCGGCAGCTCTAGTGGTAGCAGTTTTTATTGGG CCTAAAGCGTCCGTAGCCGGTTTAATAAGTCTCTGGTGAAATCCTGCAGCTTAACTGTGGGAATTG CTGGAGATACTATTAGACTTGAGATCGGGAGAGGGTTAGAGGTACTCCCAGGGTAGAGGTGAAATT CTGTAATCCTGGGAGGACCGCCTGTTGCGAAGGCGTCTGACTGGAACGATTCTGACGGTGAGG GACGAAAGCTAGGGGCGCGAACCGGATTAGATACCCGGGTAGTCCTAGCTGTAAACGATGCGGA CTTGGTGTTGGGGTGGCTTTGAGCTGTCCCAGTGCCGAAGGGAAGCTGTTAAGTCC
Odoribacter SILVA ID: AB490805.1.1478	CTCTTTTCTACTGGGAGAATAAGCCCTATGTATAAGGTGATGACAGTACAGTAGGAATAAGCATCGGCTAACTCCGTGCCAGCAGCCGCGGTAATACGGAGGATGCGAGCGTTATCCGGATTTATTGGGTTTAAAGGGTGCGTAGGCGGCGCTTTATAAGTTAGTGGTAAAATTTCGGAGCTTCACTCCGGTCCGCCATTAAAACTGTAGAGCTAGAGAATGGACGAGGTAGGCGGAATAAGTTAAGTAGCGGTGAAATGCATAGATAAACTTAGAACTCCGATAGCGAAGGCAGCTTACCAGACCATAACTGACGCTGATGCACGAGAGCGTGGGTAACCGAACAGGATTAGATACCCTGGTAGTCCACGCCGTAAACGATGCTCACCGGCCCTTAGCGATAAGACAGTTAAGGTAAGCAATAAGTTAAGTTAAGTGAGCCACC
Oxalobacter formigenes SILVA ID: U49757.1.1488	TGTCAGGGAAGAATTGATTGGGCTAATATCCCGATTAGATGACGGTACCTGAAGAATAAGCACCGGCTAACTACGTGCCAGCAGCCGCGGTAATACGTAGGGTGCGAGCGTTAATCGGAATTACTGGGCGTAAAAGCGTGCGCAGGCGGTTGTGTAAGACAGATGTGAAATGCCCGGGCTCAACCTGGGAATTGCATTTGTGACTGCACGGCTAGAGTGTCAGAGGGGGGGTAGAATTCCACGTGTAGCAGTGAAATGCGTAGATATGTGGAGGAATACCGATGGCGAAGGCAGCCCCCTGGGATAACACTGACGCTCATGCACGAAAGCGTGGGGAGCAAACAGGATTAGATACCCTGGTAGTCCACGCACTAAACGATGTCGACTAGTTGTTGGGTCTTAATAGACTTAGTAACGCAGCTAACGCTGAAGTCGACCGC
Clostridium SILVA ID: AB023971.1.1404 (The genus Clostridium corresponds to SILVA genus Peptoclostridium)	AGGCCTTCGGGTCGTAAAGCTCTGTCCTCAAGGAAGATAATGACGGTACTTGAGGAGGAAGCCCCGGCTAACTACGTGCCAGCAGCCGCGGTAATACGTAGGGGGGCTAGCGTTATCCGGATTTACTGGGCGTAAAAGGGTGCGTAGGCGGTCTTTCAAGTCAGGAGTTAAAGGCTACGGCTCAACCGTAGTAAGCTCCTGATACTGTCTGACTTGAGTGCAGGAGAGAGA

Clostridium difficile SILVA ID: FN665653.3773870.3775372 (The species Clostridium difficile corresponds to SILVA species Peptoclostridium difficile)	AGGCCTTCGGGTCGTAAAACTCTGTCCTCAAGGAAGATAATGACGGTACTTGAGGAGGAAGCCCCGGCTAACTACGTGCCAGCAGCCGCGGTAATACGTAGGGGGGCTAGCGTTATCCGGATTTACTGGGCGTAAAGGGTGCGTAGGCGGTCTTTCAAGTCAGGAGTGAAAGGCTACGGCTCAACCGTATTAAGCTCTTGAAACTGGGAGACTTGAGTGCAGGAGAGAGA
Prevotella SILVA ID: AB547700.1.1481 (The genus Prevotella corresponds to the sum of SILVA genera Prevotella, Prevotella 1, Prevotella 2, Prevotella 6, Prevotella 7 and Prevotella 9)	ACTAGGTGTCGGGGGTTACCCCCCTCGGTGCCGCAGCTAACGCATTAAGTACTCCGC TGCTTTATGCGGGGGATAAAGTGAGGGACGTGTCCTTCATTGCAGGTACCGCATGAATAAGGACC GGCTAATTCCGTGCCAGCAGCCGCGGTAATACGGAAGGTCCGGGCGTTATCCGGATTTATTGGGT TTAAAGGGAGCGTAGGCCGTGGATTAAGCGTGTTGTGAAATGCAGGTGCTCAACGTCTGCACTG CAGCGCGAACTGGTCCACTTGAGTGTGCGCAACGCAGGCGGAATTCGTCGTGTAGCGGTGAAA TGCTTAGATATGACGAAGAACTCCGATTGCGAAGGCAGCTTGCGGGAGCACAACTGACGCTGAA GCTCGAAAGTGCGGGTATCGAACAGGATTAGATACCCTGGTAGTCCGCACGGTAAACGATGGATG
Roseburia SILVA ID: AJ270473.1.1454	TATTTCGGTATGTAAAGCTCTATCAGCAGGGAAGAAGAAATGACGGTACCTGACTAAGAAGCACCGGCTAAATACGTGCCAGCAGCCGCGGTAATACGTATGGTGCAAGCGTTATCCGGATTTACTGGGTGTAAAGGGAGCGCAGGCGGAAGGCTAAGTCTGATGTGAAAGCCCGGGGCTCAACCCCGGTACTGCATTGGAAACTGGTCATCTAGAGTGTCGGAGGGGTAAGTGGAAATTCCTAGTGTAGCGGTGAAATGCGTAGATATTAGGAGGAACACCAGTGGCGAAGGCGGCTTACTGGACGATAACTGACGCTGAGGCTCGAAAGCGTGGGGGAAACACAGGATTAGATACCTGGTAGTCCACGCCGTAAACGATGAATACTAGGTGTCGGAAAGCACAGCTTTTCGGTGCCGCCGCAAACGCATTAAGTATTCCA
Ruminococcus albus SILVA ID: X85098.1.1458	AGGTTTTAGGATTGTAAACCTCTGTCTTTGGGGACGATAATGACGGTACCCAAGGAGGAAGCTCC GGCTAACTACGTGCCAGCAGCCGCGGTAATACGTAGGAGCGAGC
Salmonella SILVA ID: AF029226.1.1498	CAGCGGGAGGAAGGCGATAAGGTTAATAACCTTGTTGATTGA

Salmonella enterica SILVA ID: AB273733.1.1331	CAGCGGGAGAAGGTGTTGTGGTTAATAACCGCAGCAATTGACGTTACCCGCAGAAGAAGCAC CGCTAACTCCGTGCCAGCAGCCGCGGTAATACCGGAGGGTGCAAGCGTTAATCGGAATTACTGG GCGTAAAGCGCACGCAGGCGGTCTGTCAAGTCGGATGTGAAATCCCCGGGCTCAACCTGGGAA CTGCATTCGAAACTGGCAGGCTTGAGTCTTGTAGAGGGGGGGTAGAATTCCAGGTGTAGCGGTGA AATGCGTAGAGATCTGGAGGAATACCGGTGGCGAAGGCGCCCCCTGGACAAAGACTGACGCT CAGGTGCGAAAGCGTGGGGAGCAAACAGGATTAGATACCCTGGTAGTCCACGCCGTAAACGATG
Streptococcus sanguinis SILVA ID: AB002524.1.1358	TCTACTTGGAGGCTGTGCCCTTGAGGCGTGGCTTCCGGAGCTAACGCGTTAAGTAGACCG GTAAGAGAAACAGGGTGTAAGAGTGGAAAGTTCACACTGTGACGGTATCTTACCAGAAAGGGA CGGCTAACTACGTGCCAGCAGCCGCGGTAATACGTAGGTCCCGAGCGTTGTCCGGATTTATTGG GCGTAAAGCGAGCGCAGGCGGTTAGATAAGTCTGAAGTTAAAGGCTGTGGCTTAACCATAGTATG CTTTGGAAACTGTTTAACTTGAGTGCAGAAGGGGAGAGTGGAATTCCATGTGTAGCGGTGAAATG CGTAGATATATGGAGGAACACCGGTGGCGAAAGCGGCTCTCTGGTCTGTAACTGACGCTGAGGC TCGAAAGCGTGGGGAGCAAACAGGATTAGATACCCTTGTAGTCCACGCCGTAAACGATGAGTGCT AGGTGTTAGGCCCTTTCCGGGGGCTCAGTGCCGCAGCTAACGCATTAAGCACTCC
Veillonella SILVA ID: X84006.1.1513	AATCGGGACGAAAGGCCTTCTTGCGAATAGTTAGAAGGATTGACGGTACCGGAATAGAAAGCCAC GGCTAACTACGTGCCAGCAGCCGCGGTAATACGTAGGTGGCAAGCGTTGTCCGGAATTATTGGG CGTAAAGCGCGCGCAGCGGGTTTGGTCAGTCTGTCTTAAAAGTTCGGGGCTTAACCCCGTGATG GGATGGAAACTGCCAATCTAGAGTATCGGAGAGGAAAGTGGAATTCCTAGTGTAGCGGTGAAATG CGTAGATATTAGGAAGAACACCAGTGGCGAAGGCGACTTTCTGGACGAAAACTGACGCTGAGGC GCGAAAGCCAGGGGAACGGGATTAGATACCCCGGTAGTCCTGGCCGTAAACGATGGGTA CTAGGTGTAGGAGGTATCGACCCCTTCTGTGCCGGAGTTAACGCAATAAGTACCCC
Vibrio cholerae SILVA ID: AY292952.1.1451	CAGTAGGGAGGAAGGTGGTTAAGTTAATACCTTAATCATTTGACGTTACCTACAGAAGAAGCACCG GCTAACTCCGTGCCAGCAGCCGCGGTAATACGGAGGGTGCAAGCGTTAATCGGAATTACTGGGC GTAAAGCGCATGCAGGTGGTTTGTTAAGTCAGATGTGAAAGCCCTGGGCTCAACCTAGGAATCG CATTTGAAACTGACAAGCTAGAGTACTGTAGAGGGGGGGTAGAATTTCAGGTGTAGCGGTGAAATG CGTAGAGATCTGAAGGAATACCGGTGGCGAAGGCGGCCCCCTGGACAGATACTGACACTCAGAT GCGAAAGCGTGGGGAGCAAACAGGATTAGATACCCTGGTAGTCCACGCCGTAAACGATGTCTAC TTGGAGGTTGTGCCCTAGAGGTGTGGCTTTCGGAGCTAACGCGTTAAGTAGACCG