Microbial DNA qPCR Array

Metabolic Disorders

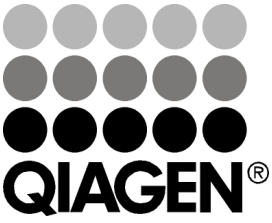
Cat. no. 330261 BAID-1406ZRA

For real-time PCR-based, application-specific microbial identification or profiling

The Metabolic Disorders Microbial DNA qPCR Array is a research tool used for screening or relative profiling of bacteria from gut-derived samples associated with obesity, type 2 diabetes mellitus, metabolic syndrome and other related diseases. Many studies have found correlations between gut microbiome composition and the incidence of metabolic disorders. In fact, the use of probiotics and antibiotics to modulate gut microbiota has been suggested as a possible treatment for metabolic disorders. However, whether those changes cause, or are a consequence of, the human disease is unknown and under continuing investigation. Several hypotheses have been proposed. The "energy harvest" hypothesis suggests that different bacterial compositions increase energy extraction from the diet providing more calories to the host. Metabolites generated by gut bacteria, particularly via fermentation, seem to also alter host gene expression dysregulating energy intake though insulin signaling and fat deposition through adipogenesis. Other associated host gene expression changes disrupt normal intestinal wall permeability causing metabolic endotoxaemia and metabolic bacteremia, the increase of lipopolysaccharide or live bacteria into the blood stream. Such increases may then lead to the intestinal or systemic inflammation often associated with, if not also contributing to, metabolic diseases. These mechanisms along with the presence of bacterial hepatotoxic bioproducts and the modulation of bile acid metabolism have been suggested to also explain the connection between gut microbiota changes and nonalcoholic steatohepatitis and fatty liver disease. This array contains assays for 45 bacterial species including key ones such as Akkermansia muciniphila, Faecalibacterium prausnitzii, Bacteroides fragilis, Bacteroides ovatus, Escherichia coli, and Eubacterium rectale. Additional species assayed by this array represent genera found in studies that only looked at that taxon or identified genera as part enterotypes, metagenomic clusters, metagenomic linkage groups, or operational taxonomic units. The array provides researchers with a convenient way to quickly detect and monitor the enrichment of bacterial species associated with metabolic disorders in stool or other samples that originate from the gut.

Assays were designed using the 16S rRNA gene as the target, and use PCR amplification primers and hydrolysis-probe detection, which increases the specificity of each assay. Each Microbial DNA qPCR Array plate can analyze 2 samples simultaneously. Pan-bacteria assays that detect a broad range of bacterial species are included to serve as positive controls for the presence of bacterial DNA, and the

Positive PCR Control assay is included to test for the presence of PCR inhibitors or the efficiency of the polymerase chain reaction. The arrays are provided with the appropriate Microbial qPCR Mastermix and Microbial DNA-Free Water. The simplicity of the product format and operating procedure allow routine and reliable screening of metabolic disorder associated bacterial species from samples in any research laboratory with access to a real-time PCR instrument.



Format	For use with the following real-time cyclers
Format A, with fluorescein	Bio-Rad® models iCycler®, iQ™5, MyiQ™, MyiQ2
Format A, with ROX	Applied Biosystems® models 5700, 7000, 7300, 7500, 7700, 7900HT, ViiA™ 7 (96-well blocks); Bio-Rad/MJ Research Chromo4™; Eppendorf® Mastercycler® ep realplex models 2, 2s, 4, 4s; Stratagene® models Mx3005P®, Mx3000P®
Format C, with ROX	Applied Biosystems models 7500 (Fast, 96-well block), 7900HT (Fast, 96-well block), StepOnePlus™, ViiA 7 (Fast, 96-well block)
Format D, with ROX	Bio-Rad CFX96™; Bio-Rad/MJ Research models DNA Engine Opticon®, DNA Engine Opticon 2; Stratagene Mx4000®
Format E, with ROX	Applied Biosystems models 7900HT (384-well block), ViiA 7 (384-well block); Bio-Rad CFX384™
Format F, with ROX	Roche® LightCycler® 480 (96-well block)
Format G, with ROX	Roche LightCycler 480 (384-well block)

Shipping and storage

Microbial DNA qPCR Arrays are shipped at ambient temperature or on blue ice packs. For long-term storage, keep plates at –20°C. Ensure that you have the correct Microbial DNA qPCR Array format for your real-time cycler (see table above). Microbial qPCR Mastermixes are shipped on blue ice packs. For long-term storage, keep Microbial qPCR Mastermixes at –20°C. Microbial DNA-Free Water is shipped at ambient temperature or on blue ice packs. If unopened, Microbial DNA-Free Water can be stored at room temperature or at –20°C. If tube is opened, store Microbial DNA-Free Water at –20°C. Discard tube of Microbial DNA-Free Water if opened three times and use fresh tube of Microbial DNA-Free Water for future experiments.

Note: Ensure that you have the correct Microbial qPCR Mastermixes, with the correct reference dye if required, for your instrument.

Note: Open the package and store the products appropriately immediately upon receipt.

Assay Table

Position	Species (NCBI Tax ID)/Gene	NCBI Tax ID	Antibiotic classification / Gene Description	May detect (species) / Also detect (antibiotic resistance genes) / Associated species (virulence factor genes)	Sensitivity	Assay Catalog #
A01	Abiotrophia defectiva	46125			20	BPID00001A
A02	Akkermansia muciniphila	239935			100	BPID00026A
A03	Alistipes putredinis	28117			200	BPID00028A
A04	Anaerotruncus colihominis	169435			100	BPID00034A
A05	Bacteroides coprocola	310298			40	BPID00047A
A06	Bacteroides eggerthii	28111			30	BPID00050A
A07	Bacteroides fragilis	817			20	BPID00051A
A08	Bacteroides intestinalis	329854			40	BPID00052A
A09	Bacteroides ovatus	28116			20	BPID00053A
A10	Bacteroides vulgatus	821		Bacteroides coprocola(310298)	50	BPID00062A
A11	Bifidobacterium adolescentis	1680			50	BPID00063A
A12	Bifidobacterium bifidum	1681			30	BPID00064A
B01	Bifidobacterium breve	1685			50	BPID00065A
B02	Bifidobacterium longum	216816			20	BPID00067A
B03	Blautia hydrogenotrophica	53443			30	BPID00070A
B04	Collinsella aerofaciens	74426			30	BPID00118A
B05	Coprococcus comes	410072			30	BPID00119A
B06	Coprococcus eutactus	33043			30	BPID00120A
B07	Desulfovibrio desulfuricans	876			300	BPID00127A
B08	Desulfovibrio piger	901			20	BPID00128A
B09	Desulfovibrio vulgaris	881			40	BPID00129A
B10	Dorea formicigenerans	39486			100	BPID00132A
B11	Escherichia fergusonii(564),Shigella boydii(621),Shigella sonnei(624),Shigella dysenteriae(622), Shigella flexneri(623) Escherichia coli	623		Escherichia albertii(208962), Enterobacter aerogenes(548), Enterobacter cloacae(550), Serratia marcescens(615)	30	BPID00146A
B12	Eubacterium rectale	39491			20	BPID00149A
C01	Faecalibacterium prausnitzii	853			20	BPID00154A
C02	Finegoldia magna	1260			20	BPID00156A
C03	Haemophilus parainfluenzae	729			30	BPID00172A
C04	Lachnobacterium bovis	140626			20	BPID00183A
C05	Lactobacillus acidophilus	1579		Lactobacillus helveticus(1587)	200	BPID00184A
C06	Lactobacillus crispatus	47770			200	BPID00186A
C07	Lactobacillus gasseri	1596			50	BPID00189A
C08	Lactobacillus rhamnosus	47715		Lactobacillus zeae(57037)	20	BPID00195A
C09	Lactobacillus salivarius	1624			20	BPID00196A
C10	Parabacteroides distasonis	823			100	BPID00257A
C11	Parabacteroides merdae	46503			30	BPID00258A
C12	Peptoniphilus asaccharolyticus	1258			20	BPID00264A
D01	Peptostreptococcus anaerobius	1261			30	BPID00265A
D02	Prevotella copri	165179			40	BPID00274A
D03	Ruminococcus gnavus	33038			30	BPID00299A
D04	Ruminococcus torques	33039			30	BPID00301A
D05	Sporobacter termitidis	44749			100	BPID00313A
D06	Streptococcus anginosus	1328			30	BPID00321A
D07	Streptococcus mutans	1309			400	BPID00328A
D08	Streptococcus thermophilus(1308) Streptococcus salivarius	1304			100	BPID00333A
	Subdoligranulum					

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D09	variabile	214851			20	BPID00340A
D10	Pan Bacteria 1					BPCL00360A
D11	Pan Bacteria 3					BPCL00362A
D12	PPC					BPCL00365A
E01	Abiotrophia defectiva	46125			20	BPID00001A
E02	Akkermansia muciniphila	239935			100	BPID00026A
E03	Alistipes putredinis	28117			200	BPID00028A
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F01	Bifidobacterium breve	1685			50	BPID00065A
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G10	Parabacteroides distasonis	823			100	BPID00257A
G11	Parabacteroides merdae	46503			30	BPID00258A
G12	Peptoniphilus asaccharolyticus	1258			20	BPID00264A
H01	Peptostreptococcus anaerobius	1261			30	BPID00265A
H02	Prevotella copri	165179			40	BPID00274A
H03	Ruminococcus gnavus	33038			30	BPID00299A
H04	Ruminococcus torques	33039			30	BPID00301A
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	Streptococcus salivarius					
H09	Subdoligranulum variabile	214851			20	BPID00340A
H10	Pan Bacteria 1					BPCL00360A
H11	Pan Bacteria 3					BPCL00362A
H12	PPC					BPCL00365A

No Template Control (NTC)>35

Microbial DNA Positive Control<34

Note: On Stratagene instruments, Ct of the positive control template >34

Ordering Information

Product	Contents	Cat. no.
Microbial DNA qPCR Array	Array plate, master mix, and microbial DNA-free water for detection of microbial species or genes	330261
Related Products		
Supplemental Microbial qPCR Mastermix ROX™	2 tubes of 1.35 ml each	330530
Supplemental Microbial qPCR Mastermix Fluor	2 tubes of 1.35 ml each	330540
Microbial DNA-Free Water	12 tubes of 1.35 ml each	338132

Microbial DNA qPCR Arrays are intended for molecular biology use only. These products are not intended for the diagnosis, prevention, or treatment of a disease..

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Ireland ▪ 1800 555 049
Italy ▪ 800-787980
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Luxembourg ▪ 8002 2076
Mexico ▪ 01-800-7742-436
The Netherlands ▪ 0800 0229592
Norway ▪ 800-18859
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