

Supplementary data S1. Search strategy*Antibiotic-associated diarrhoea*

((Probiotics[mesh] OR "lactobacillus casei"[tiab] OR "lactobacillus acidophilus"[tiab] OR "lactobacillus rhamnosus"[tiab] OR "lactobacillus reuteri"[tiab] OR "lactobacillus gasseri"[tiab] OR "lactobacillus bulgaricus"[tiab] OR "lactobacillus delbrueckii"[tiab] OR "lactobacillus salivarius"[tiab] OR "lactobacillus crispatus"[tiab] OR "lactobacillus paracasei"[tiab] OR "lactobacillus plantarum"[tiab] OR "lactobacillus fermentum"[tiab] OR "lactobacillus helveticus"[tiab] OR "lactobacillus GG"[tiab] OR "Bifidobacterium lactis"[tiab] OR "Bifidobacterium animalis"[tiab] OR "Bifidobacterium infantis"[tiab] OR "Bifidobacterium longum"[tiab] OR "Bifidobacterium breve"[tiab] OR "streptococcus salivarius"[tiab] OR "streptococcus thermophilus"[tiab] OR "bacillus coagulans"[tiab] OR "bacillus clausii"[tiab] OR "clostridium butyricum"[tiab] OR "pediococcus pentosaceus"[tiab] OR "pediococcus acidilactici"[tiab] OR "leuconostoc mesenteroides"[tiab] OR "leuconostoc pseudomesenteroides"[tiab] OR "leuconostoc lactis"[tiab] OR "Escherichia coli nissle"[tiab] OR "saccharomyces boulardii"[tiab] OR "saccharomyces cerevisiae"[tiab] OR "lactococcus lactis"[tiab] OR "enterococcus faecium"[tiab] OR (probiotic*[tiab] AND supplement*[tiab]) OR (ferment*[tiab] AND (food*[tiab] OR drink*[tiab] OR beverage*[tiab] OR milk*[tiab] OR dairy[tiab] OR soy*[tiab] OR cereal[tiab] OR grain[tiab] OR legume*[tiab] OR pulse*[tiab] OR meat*[tiab] OR fish*[tiab] OR Fruit*[tiab] OR vegetable*[tiab])) OR yogurt[mesh] OR yogurt[tiab] OR yoghurt[tiab] OR curd[tiab] OR cheese[tiab] OR kefir[tiab] OR kefir grain*[tiab] OR water kefir[tiab] OR milk kefir[tiab] OR buttermilk[tiab] OR koumiss[tiab] OR kumis[tiab] OR kumiss[tiab] OR tempeh[tiab] OR tempe[tiab] OR miso[tiab] OR tofu[tiab] OR natto[tiab] OR kimchi[tiab] OR kombucha[tiab] OR sauerkraut[tiab] OR kvass[tiab] OR skyr[tiab]) AND (Clostridium[mesh] OR "Clostridioides difficile"[mesh] OR diarrhea/prevention and control[mesh] OR "clostridium infections"[mesh] OR helicobacter infections/therapy[major] OR helicobacter infections/drug therapy[major] OR "Clostridium difficile"[tiab] OR (clostridium[tiab] AND (difficile[tiab] OR infection*[tiab])) OR "antibiotic-associated"[tiab] OR ((antibiotic*[tiab] OR antimicrob*[tiab] OR antibacteri*[all] OR bacteriocid*[all]) AND (associated[all] OR diarrhe*[all] OR diarrhoe*[all]))) AND ("prospective studies"[Mesh] OR "epidemiologic studies"[Mesh] OR "cohort studies"[Mesh] OR "follow-up studies"[Mesh] OR "cross-sectional studies"[Mesh] OR "clinical trial"[pt] OR "randomized controlled trial"[Pt] OR "controlled clinical trial"[Pt] OR "pragmatic clinical trial"[pt] OR "support of research"[Pt] OR "observational study"[Pt] OR "clinical study"[pt] OR "study characteristics"[pt] OR "Trial"[tiab] OR "longitudinal"[tiab] OR "retrospective"[tiab] OR "prospective"[tiab] OR "observational"[Tiab] OR "Controlled"[Tiab] OR "cohort"[Tiab] OR follow-up[tiab] OR "placebo-controlled"[Tiab] OR "cross-sectional"[tiab] OR "crossectional"[tiab] OR "case-control"[tiab] OR "cross-over studies"[mesh] OR "case-control studies"[mesh] OR "comparative study"[pt] OR risk factors[mesh]) AND (English[lang])) NOT (("in vitro"[tiab] OR "in vitro techniques"[mesh]) NOT (((in vivo[tiab] OR humans[tiab] OR humans[mesh]) OR ("comment"[Pt] OR "news"[Pt] OR "review"[Pt] OR "letter"[Pt] OR "systematic review"[Pt] OR "case reports"[Pt] OR "editorial"[pt] OR "guideline"[pt] OR "practice guideline"[pt] OR "biography"[pt] OR "historical article"[pt] OR "consensus"[mesh] OR "history"[sh] OR meta-analysis[pt] OR meta-analysis[ti]) OR (systematic[ti] AND review*[ti]))

Gastrointestinal health

((Probiotics[mesh] OR "lactobacillus casei"[tiab] OR "lactobacillus acidophilus"[tiab] OR "lactobacillus rhamnosus"[tiab] OR "lactobacillus reuteri"[tiab] OR "lactobacillus gasseri"[tiab] OR "lactobacillus bulgaricus"[tiab] OR "lactobacillus delbrueckii"[tiab] OR "lactobacillus salivarius"[tiab] OR "lactobacillus crispatus"[tiab] OR "lactobacillus paracasei"[tiab] OR "lactobacillus plantarum"[tiab] OR "lactobacillus fermentum"[tiab] OR "lactobacillus helveticus"[tiab] OR "lactobacillus GG"[tiab] OR "Bifidobacterium lactis"[tiab] OR "Bifidobacterium animalis"[tiab] OR "Bifidobacterium infantis"[tiab] OR "Bifidobacterium longum"[tiab] OR "Bifidobacterium breve"[tiab] OR "streptococcus salivarius"[tiab] OR "streptococcus thermophilus"[tiab] OR "bacillus coagulans"[tiab] OR "bacillus clausii"[tiab] OR "clostridium butyricum"[tiab] OR "pediococcus pentosaceus"[tiab] OR "pediococcus acidilactici"[tiab] OR "leuconostoc mesenteroides"[tiab] OR "leuconostoc pseudomesenteroides"[tiab] OR "leuconostoc lactis"[tiab] OR "Escherichia coli nissle"[tiab] OR "saccharomyces boulardii"[tiab] OR "saccharomyces cerevisiae"[tiab] OR "lactococcus lactis"[tiab] OR "enterococcus faecium"[tiab] OR (probiotic*[tiab] AND supplement*[tiab]) OR (ferment*[tiab] AND (food*[tiab] OR drink*[tiab] OR beverage*[tiab] OR milk*[tiab] OR dairy[tiab] OR soy*[tiab] OR cereal[tiab] OR grain[tiab] OR legume*[tiab] OR pulse*[tiab] OR meat*[tiab] OR fish*[tiab] OR Fruit*[tiab] OR vegetable*[tiab])) OR yogurt[mesh] OR yogurt[tiab] OR yoghurt[tiab] OR curd[tiab] OR cheese[tiab] OR kefir[tiab] OR kefir grain*[tiab] OR water kefir[tiab] OR milk kefir[tiab] OR buttermilk[tiab] OR koumiss[tiab] OR kumis[tiab] OR kumiss[tiab] OR tempeh[tiab] OR tempe[tiab] OR miso[tiab] OR tofu[tiab] OR natto[tiab] OR kimchi[tiab] OR kombucha[tiab] OR sauerkraut[tiab] OR kvass[tiab] OR skyr[tiab]) AND (flatulence[mesh] OR diarrhea[mesh] OR constipation[mesh] OR "gastrointestinal tract"[major] OR "gastrointestinal diseases"[mesh] OR "gastrointestinal motility"[mesh] OR pouchitis[mesh] OR "gas evacuation"[tiab] OR "visceral hypersensitivity"[tiab] OR digestive symptom*[tiab] OR (stool[tiab] AND (frequency[tiab] OR quantity[tiab] OR consistency[tiab])) OR bowel[tiab] OR (bowel[tiab] AND (movement*[tiab] OR habit*[tiab])) OR urgency[tiab] OR transit[tiab] OR "fecal incontinence"[tiab] OR "faecal incontinence"[tiab] OR constipation[tiab] OR diarrhea[tiab] OR diarrhoea[tiab] OR ((Abdominal[tiab] OR intestinal[tiab] OR gastrointestinal[tiab]) AND (distension[tiab] OR pain[tiab] OR discomfort[tiab] OR uncomfot[tiab] OR transit[tiab] OR incontinence[tiab])) OR traveller's diarrh*[tiab] OR traveler's diarrh*[tiab]) AND ("prospective studies"[Mesh] OR "epidemiologic studies"[Mesh] OR "cohort studies"[Mesh] OR "follow-up studies"[Mesh] OR "cross-sectional studies"[Mesh] OR "clinical trial"[pt] OR "randomized controlled trial"[Pt] OR "controlled clinical trial"[Pt] OR "pragmatic clinical trial"[pt] OR "support of research"[Pt] OR "observational study"[Pt] OR "clinical study"[pt] OR "study characteristics"[pt] OR "Trial"[tiab] OR "longitudinal"[tiab] OR "retrospective"[tiab] OR "prospective"[tiab] OR "observational"[Tiab] OR "Controlled"[Tiab] OR "cohort"[Tiab] OR follow-up[tiab] OR "placebo-controlled"[Tiab] OR "cross-sectional"[tiab] OR "crosssectional"[tiab] OR "case-control"[tiab] OR "cross-over studies"[mesh] OR "case-control studies"[mesh] OR "comparative study"[pt] OR risk factors[mesh]) AND (English[lang])) NOT (("in vitro"[tiab] OR "in vitro techniques"[mesh]) NOT (((in vivo[tiab] OR humans[tiab]) OR humans[mesh]) OR ("comment"[Pt] OR "news"[Pt] OR "review"[Pt] OR "letter"[Pt] OR "systematic review"[Pt] OR "case reports"[Pt] OR "editorial"[pt] OR "guideline"[pt] OR "practice guideline"[pt] OR "biography"[pt] OR "historical article"[pt] OR "consensus"[mesh] OR "history"[sh] OR meta-analysis[pt] OR meta-analysis[ti]) OR (systematic[ti] AND review*[ti]))

Urogenital health

((Probiotics[mesh] OR "lactobacillus casei"[tiab] OR "lactobacillus acidophilus"[tiab] OR "lactobacillus rhamnosus"[tiab] OR "lactobacillus reuteri"[tiab] OR "lactobacillus gasseri"[tiab] OR "lactobacillus bulgaricus"[tiab] OR "lactobacillus delbrueckii"[tiab] OR "lactobacillus salivarius"[tiab] OR "lactobacillus crispatus"[tiab] OR "lactobacillus paracasei"[tiab] OR "lactobacillus plantarum"[tiab] OR "lactobacillus fermentum"[tiab] OR "lactobacillus helveticus"[tiab] OR "lactobacillus GG"[tiab] OR "Bifidobacterium lactis"[tiab] OR "Bifidobacterium animalis"[tiab] OR "Bifidobacterium infantis"[tiab] OR "Bifidobacterium longum"[tiab] OR "Bifidobacterium breve"[tiab] OR "streptococcus salivarius"[tiab] OR "streptococcus thermophilus"[tiab] OR "bacillus coagulans"[tiab] OR "bacillus clausii"[tiab] OR "clostridium butyricum"[tiab] OR "pediococcus pentosaceus"[tiab] OR "pediococcus acidilactici"[tiab] OR "leuconostoc mesenteroides"[tiab] OR "leuconostoc pseudomesenteroides"[tiab] OR "leuconostoc lactis"[tiab] OR "Escherichia coli nissle"[tiab] OR "saccharomyces boulardii"[tiab] OR "saccharomyces cerevisiae"[tiab] OR "lactococcus lactis"[tiab] OR "enterococcus faecium"[tiab] OR (probiotic*[tiab] AND supplement*[tiab]) OR (ferment*[tiab] AND (food*[tiab] OR drink*[tiab] OR beverage*[tiab] OR milk*[tiab] OR dairy[tiab] OR soy*[tiab] OR cereal[tiab] OR grain[tiab] OR legume*[tiab] OR pulse*[tiab] OR meat*[tiab] OR fish*[tiab] OR Fruit*[tiab] OR vegetable*[tiab])) OR yogurt[mesh] OR yogurt[tiab] OR yoghurt[tiab] OR curd[tiab] OR cheese[tiab] OR kefir[tiab] OR kefir grain*[tiab] OR water kefir[tiab] OR milk kefir[tiab] OR buttermilk[tiab] OR koumiss[tiab] OR kumis[tiab] OR kumiss[tiab] OR tempeh[tiab] OR tempe[tiab] OR miso[tiab] OR tofu[tiab] OR natto[tiab] OR kimchi[tiab] OR kombucha[tiab] OR sauerkraut[tiab] OR kvass[tiab] OR skyr[tiab]) AND ("urinary tract infections"[mesh] OR "vaginosis, bacterial"[mesh] OR "candidiasis, vulvovaginal"[mesh] OR UTI[tiab] OR "urinary tract"[tiab] OR urogenital[tiab] OR urinary tract infection*[tiab] OR cystitis[tiab] OR pyelonephritis[tiab] OR bacteriuria[tiab] OR pyuri*[tiab]) AND ("prospective studies"[Mesh] OR "epidemiologic studies"[Mesh] OR "cohort studies"[Mesh] OR "follow-up studies"[Mesh] OR "cross-sectional studies"[Mesh] OR "clinical trial"[pt] OR "randomized controlled trial"[Pt] OR "controlled clinical trial"[Pt] OR "pragmatic clinical trial"[pt] OR "support of research"[Pt] OR "observational study"[Pt] OR "clinical study"[pt] OR "study characteristics"[pt] OR "Trial"[tiab] OR "longitudinal"[tiab] OR "retrospective"[tiab] OR "prospective"[tiab] OR "observational"[Tiab] OR "Controlled"[Tiab] OR "cohort"[Tiab] OR follow-up[tiab] OR "placebo-controlled"[Tiab] OR "cross-sectional"[tiab] OR "crosssectional"[tiab] OR "case-control"[tiab] OR "cross-over studies"[mesh] OR "case-control studies"[mesh] OR "comparative study"[pt] OR risk factors[mesh]) AND (English[lang])) NOT (("in vitro"[tiab] OR "in vitro techniques"[mesh]) NOT (((in vivo[tiab] OR humans[tiab]) OR humans[mesh]) OR ("comment"[Pt] OR "news"[Pt] OR "review"[Pt] OR "letter"[Pt] OR "systematic review"[Pt] OR "case reports"[Pt] OR "editorial"[pt] OR "guideline"[pt] OR "practice guideline"[pt] OR "biography"[pt] OR "historical article"[pt] OR "consensus"[mesh] OR "history"[sh] OR meta-analysis[pt] OR meta-analysis[ti]) OR (systematic[ti] AND review*[ti]))))

Weight management

((Probiotics[mesh] OR "lactobacillus casei"[tiab] OR "lactobacillus acidophilus"[tiab] OR "lactobacillus rhamnosus"[tiab] OR "lactobacillus reuteri"[tiab] OR "lactobacillus gasseri"[tiab] OR "lactobacillus bulgaricus"[tiab] OR "lactobacillus delbrueckii"[tiab] OR "lactobacillus salivarius"[tiab] OR "lactobacillus crispatus"[tiab] OR "lactobacillus paracasei"[tiab] OR "lactobacillus plantarum"[tiab] OR "lactobacillus fermentum"[tiab] OR "lactobacillus helveticus"[tiab] OR "lactobacillus GG"[tiab] OR "Bifidobacterium lactis"[tiab]

OR "Bifidobacterium animalis"[tiab] OR "Bifidobacterium infantis"[tiab] OR "Bifidobacterium longum"[tiab] OR "Bifidobacterium breve"[tiab] OR "streptococcus salivarius"[tiab] OR "streptococcus thermophilus"[tiab] OR "bacillus coagulans"[tiab] OR "bacillus clausii"[tiab] OR "clostridium butyricum"[tiab] OR "pediococcus pentosaceus"[tiab] OR "pediococcus acidilactici"[tiab] OR "leuconostoc mesenteroides"[tiab] OR "leuconostoc pseudomesenteroides"[tiab] OR "leuconostoc lactis"[tiab] OR "Escherichia coli nissle"[tiab] OR "saccharomyces boulardii"[tiab] OR "saccharomyces cerevisiae"[tiab] OR "lactococcus lactis"[tiab] OR "enterococcus faecium"[tiab] OR (probiotic*[tiab] AND supplement*[tiab]) OR (ferment*[tiab] AND (food*[tiab] OR drink*[tiab] OR beverage*[tiab] OR milk*[tiab] OR dairy[tiab] OR soy*[tiab] OR cereal[tiab] OR grain[tiab] OR legume*[tiab] OR pulse*[tiab] OR meat*[tiab] OR fish*[tiab] OR Fruit*[tiab] OR vegetable*[tiab])) OR yogurt[mesh] OR yogurt[tiab] OR yoghurt[tiab] OR curd[tiab] OR cheese[tiab] OR kefir[tiab] OR kefir grain*[tiab] OR water kefir[tiab] OR milk kefir[tiab] OR buttermilk[tiab] OR koumiss[tiab] OR kumis[tiab] OR kumiss[tiab] OR tempeh[tiab] OR tempe[tiab] OR miso[tiab] OR tofu[tiab] OR natto[tiab] OR kimchi[tiab] OR kombucha[tiab] OR sauerkraut[tiab] OR kvass[tiab] OR skyr[tiab]) AND ("body weight"[mesh] OR "body size"[mesh] OR "body composition"[mesh] OR "body weights and measures"[majr] OR "weight gain"[mesh] OR "body weight changes"[mesh] OR obesity[mesh] OR "waist circumference"[mesh] OR anthropometry[mesh:noexp] OR adiposity[mesh] OR "adipose tissue"[mesh] OR "ideal body weight"[mesh] OR "Body size"[tiab] OR overnutrition[tiab] OR overweight[tiab] OR "body mass index"[tiab] OR "weight status"[tiab] OR "healthy weight"[tiab] OR BMI[tiab] OR obesity[tiab] OR obese[tiab] OR weight[tiab] OR "body weight"[tiab] OR "body-weight related"[tiab] OR "weight gain"[tiab] OR "weight loss"[tiab] OR "weight-gain"[tiab] OR "weight-loss"[tiab] OR "body fat"[tiab] OR "body fat mass"[tiab] OR "waist circumference"[tiab] OR adipos*[tiab]) AND ("prospective studies"[Mesh] OR "epidemiologic studies"[Mesh] OR "cohort studies"[Mesh] OR "follow-up studies"[Mesh] OR "cross-sectional studies"[Mesh] OR "clinical trial"[pt] OR "randomized controlled trial"[Pt] OR "controlled clinical trial"[Pt] OR "pragmatic clinical trial"[pt] OR "support of research"[Pt] OR "observational study"[Pt] OR "clinical study"[pt] OR "study characteristics"[pt] OR "Trial"[tiab] OR "longitudinal"[tiab] OR "retrospective"[tiab] OR "prospective"[tiab] OR "observational"[Tiab] OR "Controlled"[Tiab] OR "cohort"[Tiab] OR follow-up[tiab] OR "placebo-controlled"[Tiab] OR "cross-sectional"[tiab] OR "crosssectional"[tiab] OR "case-control"[tiab] OR "cross-over studies"[mesh] OR "case-control studies"[mesh] OR "comparative study"[pt] OR risk factors[mesh]) AND (English[lang])) NOT (("in vitro"[tiab] OR "in vitro techniques"[mesh]) NOT (((in vivo[tiab] OR humans[tiab]) OR humans[mesh]) OR ("comment"[Pt] OR "news"[Pt] OR "review"[Pt] OR "letter"[Pt] OR "systematic review"[Pt] OR "case reports"[Pt] OR "editorial"[pt] OR "guideline"[pt] OR "practice guideline"[pt] OR "biography"[pt] OR "historical article"[pt] OR "consensus"[mesh] OR "history"[sh] OR meta-analysis[pt] OR meta-analysis[ti]) OR (systematic[ti] AND review*[ti]))

Cancer

((Probiotics[mesh] OR "lactobacillus casei"[tiab] OR "lactobacillus acidophilus"[tiab] OR "lactobacillus rhamnosus"[tiab] OR "lactobacillus reuteri"[tiab] OR "lactobacillus gasseri"[tiab] OR "lactobacillus bulgaricus"[tiab] OR "lactobacillus delbrueckii"[tiab] OR "lactobacillus salivarius"[tiab] OR "lactobacillus crispatus"[tiab] OR "lactobacillus paracasei"[tiab] OR "lactobacillus plantarum"[tiab] OR "lactobacillus fermentum"[tiab] OR "lactobacillus helveticus"[tiab] OR "lactobacillus GG"[tiab] OR "Bifidobacterium lactis"[tiab]

OR "Bifidobacterium animalis"[tiab] OR "Bifidobacterium infantis"[tiab] OR "Bifidobacterium longum"[tiab] OR "Bifidobacterium breve"[tiab] OR "streptococcus salivarius"[tiab] OR "streptococcus thermophilus"[tiab] OR "bacillus coagulans"[tiab] OR "bacillus clausii"[tiab] OR "clostridium butyricum"[tiab] OR "pediococcus pentosaceus"[tiab] OR "pediococcus acidilactici"[tiab] OR "leuconostoc mesenteroides"[tiab] OR "leuconostoc pseudomesenteroides"[tiab] OR "leuconostoc lactis"[tiab] OR "Escherichia coli nissle"[tiab] OR "saccharomyces boulardii"[tiab] OR "saccharomyces cerevisiae"[tiab] OR "lactococcus lactis"[tiab] OR "enterococcus faecium"[tiab] OR (probiotic*[tiab] AND supplement*[tiab]) OR (ferment*[tiab] AND (food*[tiab] OR drink*[tiab] OR beverage*[tiab] OR milk*[tiab] OR dairy[tiab] OR soy*[tiab] OR cereal[tiab] OR grain[tiab] OR legume*[tiab] OR pulse*[tiab] OR meat*[tiab] OR fish*[tiab] OR Fruit*[tiab] OR vegetable*[tiab])) OR yogurt[mesh] OR yogurt[tiab] OR yoghurt[tiab] OR curd[tiab] OR cheese[tiab] OR kefir[tiab] OR kefir grain*[tiab] OR water kefir[tiab] OR milk kefir[tiab] OR buttermilk[tiab] OR koumiss[tiab] OR kumis[tiab] OR kumiss[tiab] OR tempeh[tiab] OR tempe[tiab] OR miso[tiab] OR tofu[tiab] OR natto[tiab] OR kimchi[tiab] OR kombucha[tiab] OR sauerkraut[tiab] OR kvass[tiab] OR skyr[tiab]) AND (Neoplasms[mesh] OR "respiratory tract neoplasms"[mesh] OR lung neoplasms[mesh] OR "colorectal neoplasms"[mesh] OR colonic neoplasms[mesh] OR rectal neoplasms[mesh] OR "aberrant crypt foci"[mesh] OR colon[mesh] OR adenocarcinoma[mesh] OR stomach neoplasms[mesh] OR "urogenital neoplasms"[mesh] OR liver neoplasms[mesh] OR carcinoma, hepatocellular[mesh] OR "breast neoplasms"[mesh] OR prostatic neoplasms[mesh] OR mouth neoplasms[mesh] OR polyps[mesh] OR biomarkers, tumor[mesh] OR ((Neoplasm*[tiab] OR cancer*[tiab] OR carcinogen*[tiab] OR adenoma*[tiab] OR tumor*[tiab] OR tumour*[tiab] OR carcinoma*[tiab] OR adenocarcinoma*[tiab] OR sarcoma*[tiab] OR metastasis[tiab] OR metastases[tiab] OR polyp*[tiab]) AND (Colon*[tiab] OR colorect*[tiab] OR rectal[tiab] OR rectum[tiab] OR breast[tiab] OR mammary[tiab] OR prostat*[tiab] OR lung[tiab] OR gastric[tiab] OR stomach[tiab] OR oral[tiab] OR mouth[tiab] OR liver[tiab]))) AND ("prospective studies"[Mesh] OR "epidemiologic studies"[Mesh] OR "cohort studies"[Mesh] OR "follow-up studies"[Mesh] OR "cross-sectional studies"[Mesh] OR "clinical trial"[pt] OR "randomized controlled trial"[Pt] OR "controlled clinical trial"[Pt] OR "pragmatic clinical trial"[pt] OR "support of research"[Pt] OR "observational study"[Pt] OR "clinical study"[pt] OR "study characteristics"[pt] OR "Trial"[tiab] OR "longitudinal"[tiab] OR "retrospective"[tiab] OR "prospective"[tiab] OR "observational"[Tiab] OR "Controlled"[Tiab] OR "cohort"[Tiab] OR follow-up[tiab] OR "placebo-controlled"[Tiab] OR "cross-sectional"[tiab] OR "crosssectional"[tiab] OR "case-control"[tiab] OR "cross-over studies"[mesh] OR "case-control studies"[mesh] OR "comparative study"[pt] OR risk factors[mesh]) AND (English[lang])) NOT (("in vitro"[tiab] OR "in vitro techniques"[mesh]) NOT (((in vivo[tiab] OR humans[tiab]) OR humans[mesh]) OR ("comment"[Pt] OR "news"[Pt] OR "review"[Pt] OR "letter"[Pt] OR "systematic review"[Pt] OR "case reports"[Pt] OR "editorial"[pt] OR "guideline"[pt] OR "practice guideline"[pt] OR "biography"[pt] OR "historical article"[pt] OR "consensus"[mesh] OR "history"[sh] OR meta-analysis[pt] OR meta-analysis[ti]) OR (systematic[ti] AND review*[ti]))

Cardiovascular diseases and metabolic syndrome

((Probiotics[mesh] OR "lactobacillus casei"[tiab] OR "lactobacillus acidophilus"[tiab] OR "lactobacillus rhamnosus"[tiab] OR "lactobacillus reuteri"[tiab] OR "lactobacillus gasseri"[tiab] OR "lactobacillus bulgaricus"[tiab] OR "lactobacillus delbrueckii"[tiab] OR

"lactobacillus salivarius"[tiab] OR "lactobacillus crispatus"[tiab] OR "lactobacillus paracasei"[tiab] OR "lactobacillus plantarum"[tiab] OR "lactobacillus fermentum"[tiab] OR "lactobacillus helveticus"[tiab] OR "lactobacillus GG"[tiab] OR "Bifidobacterium lactis"[tiab] OR "Bifidobacterium animalis"[tiab] OR "Bifidobacterium infantis"[tiab] OR "Bifidobacterium longum"[tiab] OR "Bifidobacterium breve"[tiab] OR "streptococcus salivarius"[tiab] OR "streptococcus thermophilus"[tiab] OR "bacillus coagulans"[tiab] OR "bacillus clausii"[tiab] OR "clostridium butyricum"[tiab] OR "pediococcus pentosaceus"[tiab] OR "pediococcus acidilactici"[tiab] OR "leuconostoc mesenteroides"[tiab] OR "leuconostoc pseudomesenteroides"[tiab] OR "leuconostoc lactis"[tiab] OR "Escherichia coli nissle"[tiab] OR "saccharomyces boulardii"[tiab] OR "saccharomyces cerevisiae"[tiab] OR "lactococcus lactis"[tiab] OR "enterococcus faecium"[tiab] OR (probiotic*[tiab] AND supplement*[tiab]) OR (ferment*[tiab] AND (food*[tiab] OR drink*[tiab] OR beverage*[tiab] OR milk*[tiab] OR dairy[tiab] OR soy*[tiab] OR cereal[tiab] OR grain[tiab] OR legume*[tiab] OR pulse*[tiab] OR meat*[tiab] OR fish*[tiab] OR Fruit*[tiab] OR vegetable*[tiab])) OR yogurt[mesh] OR yogurt[tiab] OR yoghurt[tiab] OR curd[tiab] OR cheese[tiab] OR kefir[tiab] OR kefir grain*[tiab] OR water kefir[tiab] OR milk kefir[tiab] OR buttermilk[tiab] OR koumiss[tiab] OR kumis[tiab] OR kumiss[tiab] OR tempeh[tiab] OR tempe[tiab] OR miso[tiab] OR tofu[tiab] OR natto[tiab] OR kimchi[tiab] OR kombucha[tiab] OR sauerkraut[tiab] OR kvass[tiab] OR skyr[tiab]) AND ("cardiovascular diseases"[major] OR hypercholesterolemia[mesh] OR hypertension[mesh] OR "blood pressure"[major] OR Cholesterol[Mesh] OR Cholesterol, LDL[Mesh] OR Cholesterol, HDL[Mesh] OR Triglycerides[Mesh] OR "lipids/blood"[mesh] OR dyslipidemias[mesh] OR lipoproteins, hdl[mesh] OR lipoproteins, ldl[mesh] OR "diabetes mellitus"[mesh] OR "diabetes mellitus, type 2"[mesh] OR "blood glucose"[mesh] OR "insulin resistance"[mesh] OR "metabolic syndrome"[mesh] OR "prediabetic state"[mesh] OR hyperglycemia[mesh] OR insulin[mesh] OR biomarkers/blood[mesh] OR hypertens*[tiab] OR cerebrovascular[tiab] OR CVD[tiab] OR coronary[tiab] OR heart[tiab] OR cardiac[tiab] OR "blood pressure"[tiab] OR hypercholesterolemia*[tiab] OR diabet*[tiab] OR glucose intoleran*[tiab] OR prediabet*[tiab] OR Glycemi*[tiab] OR "fasting blood glucose"[tiab] OR "blood glucose"[tiab] OR "insulin resistance"[tiab] OR "diabetes mellitus"[tiab] OR "type 2 diabetes mellitus"[tiab] OR "type 2 diabetes"[tiab] OR "diabetes mellitus type 2"[tiab] OR "lipid profile"[tiab] OR "glycemic control"[tiab] OR (metabolic[tiab] AND (syndrome[tiab] OR disorder[tiab]))) AND ("prospective studies"[Mesh] OR "epidemiologic studies"[Mesh] OR "cohort studies"[Mesh] OR "follow-up studies"[Mesh] OR "cross-sectional studies"[Mesh] OR "clinical trial"[pt] OR "randomized controlled trial"[Pt] OR "controlled clinical trial"[Pt] OR "pragmatic clinical trial"[pt] OR "support of research"[Pt] OR "observational study"[Pt] OR "clinical study"[pt] OR "study characteristics"[pt] OR "Trial"[tiab] OR "longitudinal"[tiab] OR "retrospective"[tiab] OR "prospective"[tiab] OR "observational"[Tiab] OR "Controlled"[Tiab] OR "cohort"[Tiab] OR follow-up[tiab] OR "placebo-controlled"[Tiab] OR "cross-sectional"[tiab] OR "crosssectional"[tiab] OR "case-control"[tiab] OR "cross-over studies"[mesh] OR "case-control studies"[mesh] OR "comparative study"[pt] OR risk factors[mesh]) AND (English[lang])) NOT (("in vitro"[tiab] OR "in vitro techniques"[mesh]) NOT (((in vivo[tiab]) OR humans[tiab]) OR humans[mesh]) OR ("comment"[Pt] OR "news"[Pt] OR "review"[Pt] OR "letter"[Pt] OR "systematic review"[Pt] OR "case reports"[Pt] OR "editorial"[pt] OR "guideline"[pt] OR "practice guideline"[pt] OR "biography"[pt] OR "historical article"[pt] OR "consensus"[mesh] OR "history"[sh] OR meta-analysis[pt] OR meta-analysis[ti]) OR (systematic[ti] AND review*[ti]))

Respiratory health

((Probiotics[mesh] OR "lactobacillus casei"[tiab] OR "lactobacillus acidophilus"[tiab] OR "lactobacillus rhamnosus"[tiab] OR "lactobacillus reuteri"[tiab] OR "lactobacillus gasseri"[tiab] OR "lactobacillus bulgaricus"[tiab] OR "lactobacillus delbrueckii"[tiab] OR "lactobacillus salivarius"[tiab] OR "lactobacillus crispatus"[tiab] OR "lactobacillus paracasei"[tiab] OR "lactobacillus plantarum"[tiab] OR "lactobacillus fermentum"[tiab] OR "lactobacillus helveticus"[tiab] OR "lactobacillus GG"[tiab] OR "Bifidobacterium lactis"[tiab] OR "Bifidobacterium animalis"[tiab] OR "Bifidobacterium infantis"[tiab] OR "Bifidobacterium longum"[tiab] OR "Bifidobacterium breve"[tiab] OR "streptococcus salivarius"[tiab] OR "streptococcus thermophilus"[tiab] OR "bacillus coagulans"[tiab] OR "bacillus clausii"[tiab] OR "clostridium butyricum"[tiab] OR "pediococcus pentosaceus"[tiab] OR "pediococcus acidilactici"[tiab] OR "leuconostoc mesenteroides"[tiab] OR "leuconostoc pseudomesenteroides"[tiab] OR "leuconostoc lactis"[tiab] OR "Escherichia coli nissle"[tiab] OR "saccharomyces boulardii"[tiab] OR "saccharomyces cerevisiae"[tiab] OR "lactococcus lactis"[tiab] OR "enterococcus faecium"[tiab] OR (probiotic*[tiab] AND supplement*[tiab]) OR (ferment*[tiab] AND (food*[tiab] OR drink*[tiab] OR beverage*[tiab] OR milk*[tiab] OR dairy[tiab] OR soy*[tiab] OR cereal[tiab] OR grain[tiab] OR legume*[tiab] OR pulse*[tiab] OR meat*[tiab] OR fish*[tiab] OR Fruit*[tiab] OR vegetable*[tiab])) OR yogurt[mesh] OR yogurt[tiab] OR yoghurt[tiab] OR curd[tiab] OR cheese[tiab] OR kefir[tiab] OR kefir grain*[tiab] OR water kefir[tiab] OR milk kefir[tiab] OR buttermilk[tiab] OR koumiss[tiab] OR kumis[tiab] OR kumiss[tiab] OR tempeh[tiab] OR tempe[tiab] OR miso[tiab] OR tofu[tiab] OR natto[tiab] OR kimchi[tiab] OR kombucha[tiab] OR sauerkraut[tiab] OR kvass[tiab] OR skyr[tiab]) AND ("respiratory tract infections"[mesh] OR "common cold"[major] OR "streptococcal infections"[major] OR "virus diseases"[major] OR influenza, human[major] OR otitis[mesh] OR fever[mesh] OR SARS-Cov-2[major] OR otitis media[tiab] OR "respiratory tract"[tiab] OR influenza[tiab] OR flu[tiab] OR "common cold"[tiab] OR "severe acute respiratory syndrome coronavirus 2"[all] OR COVID-19[tiab] OR "covid 19"[tiab]) AND ("prospective studies"[Mesh] OR "epidemiologic studies"[Mesh] OR "cohort studies"[Mesh] OR "follow-up studies"[Mesh] OR "cross-sectional studies"[Mesh] OR "clinical trial"[pt] OR "randomized controlled trial"[Pt] OR "controlled clinical trial"[Pt] OR "pragmatic clinical trial"[pt] OR "support of research"[Pt] OR "observational study"[Pt] OR "clinical study"[pt] OR "study characteristics"[pt] OR "Trial"[tiab] OR "longitudinal"[tiab] OR "retrospective"[tiab] OR "prospective"[tiab] OR "observational"[Tiab] OR "Controlled"[Tiab] OR "cohort"[Tiab] OR follow-up[tiab] OR "placebo-controlled"[Tiab] OR "cross-sectional"[tiab] OR "crossectional"[tiab] OR "case-control"[tiab] OR "cross-over studies"[mesh] OR "case-control studies"[mesh] OR "comparative study"[pt] OR risk factors[mesh]) AND (English[lang])) NOT (("in vitro"[tiab] OR "in vitro techniques"[mesh]) NOT (((in vivo[tiab] OR humans[tiab]) OR humans[mesh]) OR ("comment"[Pt] OR "news"[Pt] OR "review"[Pt] OR "letter"[Pt] OR "systematic review"[Pt] OR "case reports"[Pt] OR "editorial"[pt] OR "guideline"[pt] OR "practice guideline"[pt] OR "biography"[pt] OR "historical article"[pt] OR "consensus"[mesh] OR "history"[sh] OR meta-analysis[pt] OR meta-analysis[ti]) OR (systematic[ti] AND review*[ti]))

Immunological health

((Probiotics[mesh] OR "lactobacillus casei"[tiab] OR "lactobacillus acidophilus"[tiab] OR "lactobacillus rhamnosus"[tiab] OR "lactobacillus reuteri"[tiab] OR "lactobacillus

gasseri"[tiab] OR "lactobacillus bulgaricus"[tiab] OR "lactobacillus delbrueckii"[tiab] OR "lactobacillus salivarius"[tiab] OR "lactobacillus crispatus"[tiab] OR "lactobacillus paracasei"[tiab] OR "lactobacillus plantarum"[tiab] OR "lactobacillus fermentum"[tiab] OR "lactobacillus helveticus"[tiab] OR "lactobacillus GG"[tiab] OR "Bifidobacterium lactis"[tiab] OR "Bifidobacterium animalis"[tiab] OR "Bifidobacterium infantis"[tiab] OR "Bifidobacterium longum"[tiab] OR "Bifidobacterium breve"[tiab] OR "streptococcus salivarius"[tiab] OR "streptococcus thermophilus"[tiab] OR "bacillus coagulans"[tiab] OR "bacillus clausii"[tiab] OR "clostridium butyricum"[tiab] OR "pediococcus pentosaceus"[tiab] OR "pediococcus acidilactici"[tiab] OR "leuconostoc mesenteroides"[tiab] OR "leuconostoc pseudomesenteroides"[tiab] OR "leuconostoc lactis"[tiab] OR "Escherichia coli nissle"[tiab] OR "saccharomyces boulardii"[tiab] OR "saccharomyces cerevisiae"[tiab] OR "lactococcus lactis"[tiab] OR "enterococcus faecium"[tiab] OR (probiotic*[tiab] AND supplement*[tiab]) OR (ferment*[tiab] AND (food*[tiab] OR drink*[tiab] OR beverage*[tiab] OR milk*[tiab] OR dairy[tiab] OR soy*[tiab] OR cereal[tiab] OR grain[tiab] OR legume*[tiab] OR pulse*[tiab] OR meat*[tiab] OR fish*[tiab] OR Fruit*[tiab] OR vegetable*[tiab])) OR yogurt[mesh] OR yogurt[tiab] OR yoghurt[tiab] OR curd[tiab] OR cheese[tiab] OR kefir[tiab] OR kefir grain*[tiab] OR water kefir[tiab] OR milk kefir[tiab] OR buttermilk[tiab] OR koumiss[tiab] OR kumis[tiab] OR kumiss[tiab] OR tempeh[tiab] OR tempe[tiab] OR miso[tiab] OR tofu[tiab] OR natto[tiab] OR kimchi[tiab] OR kombucha[tiab] OR sauerkraut[tiab] OR kvass[tiab] OR skyr[tiab]) AND ("oxidative stress"[mesh] OR "reactive nitrogen species"[major] OR glutathione[major] OR "killer cells, natural"[mesh] OR phagocytes[major] OR neutrophils[major] OR immunity[major] OR "C-reactive protein"[mesh] OR interleukins[mesh] OR interferons[mesh] OR cytokines[mesh] OR leukocytes, mononuclear/immunology[mesh] OR granulocytes/immunology[mesh] OR phagocytosis[mesh] OR "immunity, cellular"[mesh] OR "immunity, humoral"[mesh] OR hematology[mesh] OR immunoglobulin*[major] OR immunoglobulin A, secretory[major] OR Inflammation[major] OR inflammation mediators[major] OR hematolog*[tiab] OR haematolog*[tiab] OR (blood[tiab] AND clinical[tiab] AND chemistry[tiab]) OR "inflammatory biomarker"[tiab]) AND ("prospective studies"[Mesh] OR "epidemiologic studies"[Mesh] OR "cohort studies"[Mesh] OR "follow-up studies"[Mesh] OR "cross-sectional studies"[Mesh] OR "clinical trial"[pt] OR "randomized controlled trial"[Pt] OR "controlled clinical trial"[Pt] OR "pragmatic clinical trial"[pt] OR "support of research"[Pt] OR "observational study"[Pt] OR "clinical study"[pt] OR "study characteristics"[pt] OR "Trial"[tiab] OR "longitudinal"[tiab] OR "retrospective"[tiab] OR "prospective"[tiab] OR "observational"[Tiab] OR "Controlled"[Tiab] OR "cohort"[Tiab] OR follow-up[tiab] OR "placebo-controlled"[Tiab] OR "cross-sectional"[tiab] OR "crosssectional"[tiab] OR "case-control"[tiab] OR "cross-over studies"[mesh] OR "case-control studies"[mesh] OR "comparative study"[pt] OR risk factors[mesh]) AND (English[lang])) NOT (("in vitro"[tiab] OR "in vitro techniques"[mesh]) NOT (((in vivo[tiab] OR humans[tiab]) OR humans[mesh]) OR ("comment"[Pt] OR "news"[Pt] OR "review"[Pt] OR "letter"[Pt] OR "systematic review"[Pt] OR "case reports"[Pt] OR "editorial"[pt] OR "guideline"[pt] OR "practice guideline"[pt] OR "biography"[pt] OR "historical article"[pt] OR "consensus"[mesh] OR "history"[sh] OR meta-analysis[pt] OR meta-analysis[ti] OR (systematic[ti] AND review*[ti]))

Supplementary data S2. PRISMA-ScR Flowchart

