

Gestational diabetes AND (biomarker OR biomarkers OR test) AND (novel OR novels OR new OR (emerge OR emerged OR emerging)) AND (diagnose OR diagnosis OR diagnosed OR diagnoses OR diagnosable OR diagnosing OR diagnosed)

Supplemental Table S1. Biomarkers identified through the scoping review in alphabetical order.

A
Acetaldehyde
Acetate (amniotic)
Acetoacetic acid
Acetone
Acetylcarnitine
ADAMTS like protein 2
ADAMTS-9
Adenosine
Adenosine deaminase
Adipate (urine)
Adipic acid (serum and maternal hair)
Adipocyte fatty acid-binding protein
Adipocyte plasma membrane-associated protein
Adiponectin/ High molecular weight adiponectin
ADIPOQ gene SNP: rs1501299, rs266729, and rs2241766
ADRA2A gene
Adrenic acid
Adropin
Advanced oxidation protein products
Afamin
Alanine
Alanine transaminase (ALT)
Aldosterone
Aldosterone/renin ratio
Alpha feto protein
Allantoin
Alpha 2 macroglobulin
Alpha-1 antitrypsin
Alpha-1-antichymotrypsin
Alpha-1B-glycoprotein
Alpha-glycerophosphocholine
Alpha-N-acetylglucosaminidase
Amylase

Amyloid A-2 protein
Amyloid P component
Angiopoietin-like protein 2 (ANGPTL2)
Angiopoietin-Like Protein 8 (ANGPTL8)
Angiotensinogen
Anthranilic acid
Antithrombin-III
Apelin
Apo D
Apo L1
Apo M
Apolipoprotein
Apoptosis inducing factor-1F
Arachidonic acid
Arginine
Argininosuccinic acid (foetal meconium)
Arylesterase 1
Asparaginase
Aspartate transaminase (AST)
Aspartic acid
Asprosin
Asymmetric dimethylarginine
Aurora B kinase (AURKB)
B
Betaine
Betatrophin
Bilirubin
Butanone
β -Human chorionic gonadotropin (β hCG)
β -Hydroxybutyrate & β -hydroxybutyric acid
β -muricholic acid
β -sitosterol
C
C17-Sphingosine
C18- Sphingosine
C16-Sphingosine
C16-Sphinganine B
Complement Factor H
C10orf10 gene
C18-Sphinganine (C18SA)

C18SA-Diene, C19-Sphingosine (C19SO)
C1q/Tumor necrosis factor-related protein-3 (CTRP3)
C30:0 DAG
C32:0 DAG
C32:1 DAG
C32:2 DAG
C34:0 DAG
C34:3 DAG
C42:0 TAG
C4b-binding protein alpha chain
Chromosome 5 Open Reading Frame 34 (C5orf34)
Coiled-coil domain containing 124 (CCDC124)
CD163
CD3+ T-Cell Receptor (TCR) Gamma Delta
CD36
CD56(+)/CD16(-)
CD56(+)/Nkp46(+)
CD59
CDC123/CAMK1D
Cyclin-dependent kinase 1 (CDK1)
CDK5CDKN2A/2B
Cdk5 regulatory associated protein 1-like 1 (CDKAL1)
Cyclin Dependent Kinase Inhibitor 2A/B (CDKN2A/B) Gene (Rs1063192, Rs3217992, Rs3088440)
CD34+CD133+KDR+
Centrosome-associated protein E (CENPE)
Chemerin
Cholesterol
Choline (urine)
Choline ether phospholipid
Chromogranin A
Circulatory coiled-coil domain-containing 80 (CCDC80)
Cis-Aconitate acid
Citrate (urine)
Citrate lyase subunit beta-like protein
Citrulline
Clusterin
Coagulation Factor IX
Coagulation Factor V P
Coagulation Factor X
Coagulation Factor XII
Cofilin-1
Complement C1q tumour necrosis factor-related proteins (CTRP1)

Complement C1s subcomponent P09871 C1S
Complement C5
Complement component C6
Complement component C8 alpha chain
Complement component C8 gamma chain
Complement component C9
Complement component C7
Complement component C8 beta
Complement factor H-related protein 5
Connective tissue growth factor
Copeptin
COP9 Signalosome Subunit 8 (COPS8) gene
Creatine/Creatinine
C-reactive protein (CRP)/ High sensitivity C-reactive protein (hsCRP)
Cyclophylin
Cystatin C
Cystatin M
Cytochrome P450 family 26 subfamily B member 1 (CYP26B1)
D
D-chiro-inositol (DCI in urine)
Delta neutrophil index
Desmoglein-2
D-galactose
Dibutyl decanedioate
Dihomo-linoleate
Dihydroxyacetone phosphate (meconium)
Dimethyl sulfone
Dimethyluric acid (meconium)
Dioxin-like polychlorinated biphenyl
Docosahexaenoic acid
Docosapentaenoic acid
Docusatetraenoic acid
D-phenylalanine (urine)
D-sorbitol
E
E- selectin
Eicosapentaenoic acid
Eicosatrienoic acid
Eicosenoate
Endoplasmin

Endothelial glycocalyx
Endothelial progenitor cells
Estrone
Ethanolamine
Ethylmalonate (urine)
Extracellular vesicles/exosomes
F
F polypeptide-interacting protein-binding protein 2 (ppfibp2)
Fat mass and obesity associated (<i>FTO</i>) gene rs9939609
Fatty acid binding protein 4
Ferritin
Fetuin A, B
Fibrinogen alpha chain
Fibrinogen-like protein 1
Fibroblast growth factor (FGF)
Ficolin 3
Follistatin-like-3
Follistatin-like 1 (FSTL1) gene
Formate (amniotic fluid and urine)
Fractalkine
Free fatty acids
Fibrinogen beta chain
Fibrinogen gamma chain
Fibronectin
Fumaric acid
G
Galactose (urine)
Galanin
Galectin-3-binding protein
Gamma-glutamyl transferase (<i>GGT</i>)
Gamma-Linolenic acid
Gastric inhibitory polypeptide (GIP)
Gelsolin
Ghrelin
Glucagon
Glucagon like peptide-1 (GLP1)
Glucokinase (GCK) SNP rs1799884 and rs4607517,
Gluconolactone
Glucosamine
Glucose

Glutamate (serum and amniotic fluid)
Glutathione peroxidase
Glutathione S-transferase (GST) theta 1 (GSTT1)
Glyceraldehyde-3- phosphate dehydrogenase
Glycerol
Glycerophosphocholine
Glycine (serum and amniotic fluid)
Glycochenodeoxycholic
Glycocholic acid (serum and meconium)
Glycodeoxycholic acid
Glycolic thocholic
Glycolic acid
Glycosylated fibronectin
Glycoursodeoxycholic acid
Growth hormone receptor
H
Haptoglobin
Heat Shock Protein Family A (Hsp70) Member 6 (HSPA6)
Hem oxygenase 1
Haemoglobin subunit beta
Hemopexin
Hepatocyte Growth factor (HGF)
Hepatocyte nuclear factor-1alpha (HNF1A)
Hepcidin
Heptadecanoic acid
High density lipoprotein (HDL)
Hippurate (urine)
Histidine
HLA-DPB1
HLA-DQA1
HLA-DQA2
HLA-DRA
HLA-DRB1
HLA-DRB4
HLA-DRB5
HLA-DRB5
Homovanillic acid
Homozygous GG variant of Alpha 2-HS Glycoprotein (AHSG) gene 767C>G polymorphism
Hydroxyindoleacetyl glycine (meconium)
Hydroxyproline

Hypoxanthine (urine)
I
Ig gamma-1 chain C region
Ig mu chain C region
Ig J chain
Ig heavy chain V-II region,
Ig heavy chain V-II region WAH,
Ig kappa chain V-I region DEE
Ig kappa chain V-I region Roy
Ig heavy chain V-II region
Ig heavy chain V-I region V35
Ig mu chain C region
Ig kappa Locus (IGK) protein
Ig kappa chain V-III region
Ig heavy chain variant CLL
Ig lambda chain V-III region LOI
Ig GFc binding protein
Inhibin A
Inositol Phosphoglycan P-Type (urine)
Insulin
Intracellular adhesion molecule-1
Interleukin 1 (IL1)
Interleukin 1 (IL1) receptor antagonist
Interleukin 10 (IL10)
Interleukin 18 (IL18)
Interleukin 4 (IL4)
Interleukin 6 (IL6)
Interleukin 8 (IL8)
lncRNA Metastasis associated lung adenocarcinoma transcript 1 (MALAT1), lncRNA p21, and lncRNA H19
Indoleacetaldehyde (urine)
Indoleacetic acid (urine)
Indole-3-acetamide (urine)
Insulin growth factor 1 (IGF1)
Insulin growth factor (IGF) rs1470579/IGF2BP2
Insulin-like growth factor-binding protein
Insulin-like growth factor-binding protein 5
Insulin-like growth factor-binding protein complex acid labile subunit
Insulin receptor substrate1 (IRS-1) G972R variant
Insulin receptor substrate 1 (IRS1) SNP rs1801278 and rs7578326
Insulin receptor (INSR) rs1366600, rs3745550

Inter-alpha trypsin inhibitor heavy chain h1
Inter-alpha (globulin) inhibitor h2
Inter-alpha-trypsin inhibitor heavy chain h3
Inter alpha trypsin inhibitor heavy chain h4
Interferon- γ -producing CD56(+) cells.
Irisin
Iron
Isoleucine
Itaconic acid (serum and hair)
K
Kallikrein
KH RNA Binding Domain Containing Signal Transduction Associated 2 (KHDRBS2) gene
Kinesin Family Member 2C (KIF2C) gene
Kininogen-1
Kisspeptin
KKLPPAS
Kynurenic acid
L
L-2-hydroxyglutaric acid
Lactate
Lactonase 3
Lactose (urine)
Lactotransferrin
L-alanine
L-asparagine
Lauric acid
L-citrulline
Leptin
Leptin (LEP) gene rs2167270 polymorphism
Leucine-rich alpha-2-glycoprotein
L-glutamic acid
Linoleic acid
Lipid raft linker 1 (rftn1),
Lipocalin
Lipoxin c4
L-lactic acid
L-malic acid
Long chain polyunsaturated fatty acids derivatives
L-ornithine
LPI (18:2), (20:4)

L-phenylalanyl-l-proline(urine)
L-pyroglutamic acid
L-serine
L-tryptophan
L-tyrosine
Lumican
L-valine
Low density lipoprotein (LDL)
Lysine (serum and urine)
Lysoglycerophospholipids
Lysophosphatidic acid 0:0/18:2(9Z,12Z)
Lysophosphatidylcholine (C18:0 LPC, LPC (18:2), LPC (20:4), LPC (20:5))
Lysophosphatidylethanolamine (C16:0 LPE, C18:0 LPE, C18:1 LPE LPE(20:1), (20:2), (22:4))
Lysopc(16:1)
Lysopc(20:2)
Lysopc(20:4)
M
Mitotic Arrest Deficient 2 Like 1 (MAD2L1) gene
Malondialdehyde
Mannan-binding lectin serine protease 1
Mannan-binding lectin serine protease 2
Mannitol
Margarate
Melatonin receptor 1B (MTNR1B) rs10830963/G allele
Mesotelin (MSLN) gene
Meta-Tyrosine
Methanol
Methyladenosine (Meconium)
Methylepicatechin (Meconium)
Methylguanosine (Meconium)
Methylxanthine (Meconium)
Mimosine
Micro mRNAs:
mir-122
mir-126
mir-132
mir-15a
mir-16-5p
mir-17-5
mir-191
mir-195-5p

mir-197
mir-20a-5p
mir-20b
mir-21
mir-222
mir-223
mir-24
mir-320
mir-324-3p
mir-330-3p
mir-340
mir-375
mir-375
mir-486
miR-52
MutS Protein Homolog 5 (MSH5)
Myeloperoxidase
Myo-inositol (MI in urine)
Myosin-reactive immunoglobulin heavy chain variable region,
Myosin-reactive immunoglobulin light chain variable region P04438
Myostatin
Myristic acid
N
N4-acetylcytidine
N-acetylgalactosamine-4-sulphate
N-acetyl aspartic acid
N-acetyl beta D hexosaminidase
N-acetyl-L-alanine
Nesfatin — 1
Neuregulin 1 (NRG1)
Neutrophil gelatinase-associated lipocalin (NGAL)
Neutrophil to lymphocyte ratio
Niacinamide
Nitrotyrosine
N-methyl-2-pyridone-5-carboxamide (urine)
N-methyl-nicotinamide (urine)
Nonadecanoate
Non-esterified fatty acids
N-terminal pro-atrial natriuretic peptide (pro-ANP)
N-terminal-pro-brain natriuretic peptide (pro-BNP)
Nucleoside Diphosphate-Linked Moiety X Motif 6 (NUDT6)

O
Octadecatrienoic Acid,
Octulose-1,8-Bisphosphate
Oleic Acid
Omentin
O-Phosphocolamine
Ornithine
Osteocalcin
Osteopontin
Oxitriptan (Urine)
Oxotrihydroxyleukotriene B4 (Meconium)
P
Palmitic acid
Palmitoleic acid
Pancreatic derived factor
Pappalysin-1
Paraoxonase
Parathyroid hormone
Pentraxin 3
Peroxisome proliferator-activated receptors gamma coactivator 1 alpha (PGC1A)
Phenylacetylglutamine (urine)
Phenylalanine
Phosphatidylcholine
Phosphatidylethanolamine (PE 14:1/20:0)
Phosphatidylserine PE (16:0/22:6), PE (18:0/20:4), PC(18:0/20:3), PC(18:1/20:3) and PS(18:0/18:2
Phosphocholine
Phosphoinositide-3-Kinase Regulatory Subunit 5 (PIK3R5)
Phospholipid transfer protein
Phytoenoic acid
Pigment epithelium-derived factor (PEDF)
Placental glucose transporters (GLUT)
Placental growth factor
Placental lactogen
Plasminogen activator inhibitor-1
Platecrit
Platelet derived growth factor (PDGF)
Platelet glycoprotein IB alpha chain
Platelet glycoprotein V
Platelet to lymphocyte ratio
Polo-like kinase 1 (PLK1)

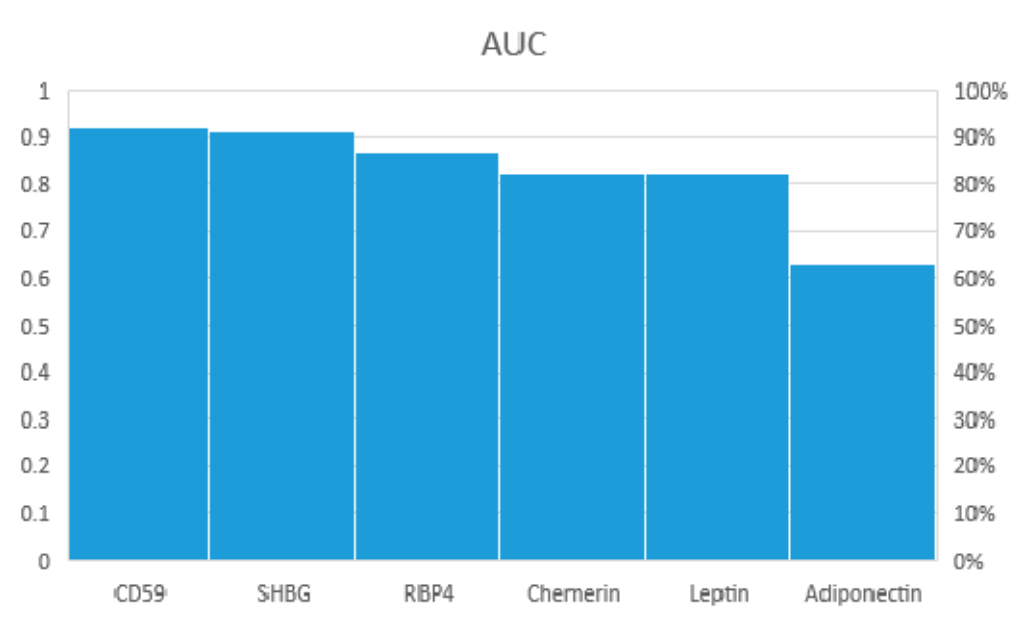
Polybrominated diphenyl ethers (PBDE 99,28)
Polychlorinated biphenyls (PCB 28, 187, 118)
Polyethylene glycol (urine)
Potassium voltage-gated channel subfamily Q member 1 (KCNQ1)
Peroxisome proliferator-activated receptor gamma 2 (PPARG2)
Pregnancy associated plasma protein A (PAPP-A)
Protein 13
Pregnancy specific glycoprotein 1
Pregnancy Zone protein
Preptin
Procalcitonin
Programmed cell death 6 interacting protein (PDCD6IP)
Progranulin
Pro-insulin
Prokinetocin 1
Prolactin receptor/gene
Proline (serum and amniotic fluid)
Prostanoic acid
Protease C1 inhibitor
Protein disulfide-isomerase
Protein hydroperoxides
Protein Z-dependent protease inhibitor
Protein-Tyrosine Phosphatase Receptor-Type
Proteoglycan 4
Prothrombin
Putative pregnancy specific beta glycoprotein 7
Pyridoxal
Pyroglutamic acid
Pyrophosphate
Pyruvate
R
Ras GTPase-activating protein 3 (RASA3)
Raftlin
Resistin
Retinol
Retinol-Binding Protein-4 (RBP-4)
Receptor type tyrosine protein phosphatase S
S
Sarcosine
Secretagogin

Selenium (placental)
Semiphorin 6D (SEMA6D)
Serine (amniotic fluid and serum)
Serine protease inhibitor Kazal type 5
Serinyl-glycine
Serotonin (urine)
Serotransferrin
Sesaminol 2-O-triglucoside
Sex hormone-binding globulin (SHBG)
Shikimate-3-phosphate
SLC30A8 rs2466293, rs13266634
SMAD nuclear interacting protein 1 (SNIP1)
Soluble endoglin
Soluble fms-like tyrosine kinase-1
Soluble human leukocyte antigen G
Soluble pro-renin receptor
Spexin
Sphingomyelin (d18:0/18:0)
Sphingosine (C18SO)
Stearic acid
Steridonate
Serine/Threonine Kinase 11 (STK11)
Storkhead Box (STOX2)
Subfatin
Succinate (urine)
Sulfated bile acids (dehydro-1S, mono-2S+ mono-3S, mono-4S, and mono-5S))
Suprabasin
Switching B Cell Complex Subunit SWAP70 (SWAP70)
T
Taurine (amniotic fluid)
Taurine-conjugated bile acids
Taurochenodeoxycholic
Taurodeoxycholic acid (serum and meconim)
Transcription factor 7-like 2 (TCF7L2) gene
Testosterone
Tetrahydrodipicolinate (meconium)
Transforming growth factor - β - producing CD56(+) cells
Thiamine
Thioacetone
Threonine (serum and urine)
Thrombospondin-1

Thyroid antibodies
Thyroid function tests
Tissue plasminogen activator
Total bile acids
Trans-3-octenedioic acid
Transgelin-2
Transtyretin
Triacylglycerols
Tricin 7-neohesperidoside
Triglycerides
Trihydroxy-cholestanoyl metabolite
Trimethylamine N Oxide
Tryptophan
Tumour necrosis factor
Tumour necrosis factor - α -producing CD56(+) cells.
Tumour necrosis factor-like weak inducer of apoptosis (sTWEAK)
Tyrosine
U
Unc-5 Netrin Receptor C (UNC5C)
Unconjugated estriol
Urea
Uric acid (serum and urine)
Uridine (urine)
Urinary liver-type fatty acid-binding protein (L-FABP)
V
Valine
Vanilloylglycine (meconium)
Vascular adhesion protein
Vascular endothelial growth factor producing CD56(+) cells
Vaspin
Very low-density lipoprotein (VLDL)
Visfatin
Vitamin B12
Vitamin D
Vitamin D binding protein
Vitamin D receptor (VDR)
Vitamin K-dependent protein C
Vitronectin
Von Willebrand factor

W
Wnt Family Member 6 (WNT6),
Wnt1-inducible signaling pathway protein-1 (WISP1)
X
Xaa-Pro dipeptidase
Xanthine (urine)
Xanthosine (urine)
Xylose (urine)
Y
YKL 40
Z
Zinc finger protein basophilin-2
Zinc transporter 8 autoantibodies
Zonulin
Other
1-eicosanoyl-glycero-3-phosphoserine
1 trihydroxy unconjugated bile acid
1,3-diphosphoglycerate
1,5 anhydroglucitol
1,5-anhydroglucitol
1-Acetoxyeugenol acetate (urine)
1-deoxy-sphinganine (1-deoxySA)
1-deoxy-sphingosine (1-deoxySO)
1-methyladenosine (serum and urine)
1-methylhypoxanthine (urine)
2 dihydroxy conjugated bile acid
2-hydroxyisobutyrate (plasma and urine)
2-Hydroxy-lauroylcarnitine (urine)
2-hydroxypalmitate
2-hydroxystearate
2-oxo-4-methylthiobutanoic acid
3,4-Dimethyl-5-pentyl-2-furanundecanoic acid (urine)
3-carboxy-4-methyl-5-propyl-2-furanpropanoic acid (CMPF)
3-hydroxybutyrate
3-hydroxyisovalerate (urine)
3-hydroxy-isovaleryl-carnitine
3-hydroxyoctanoate

Figure S1: Reported AUC at the time of GDM diagnosis;

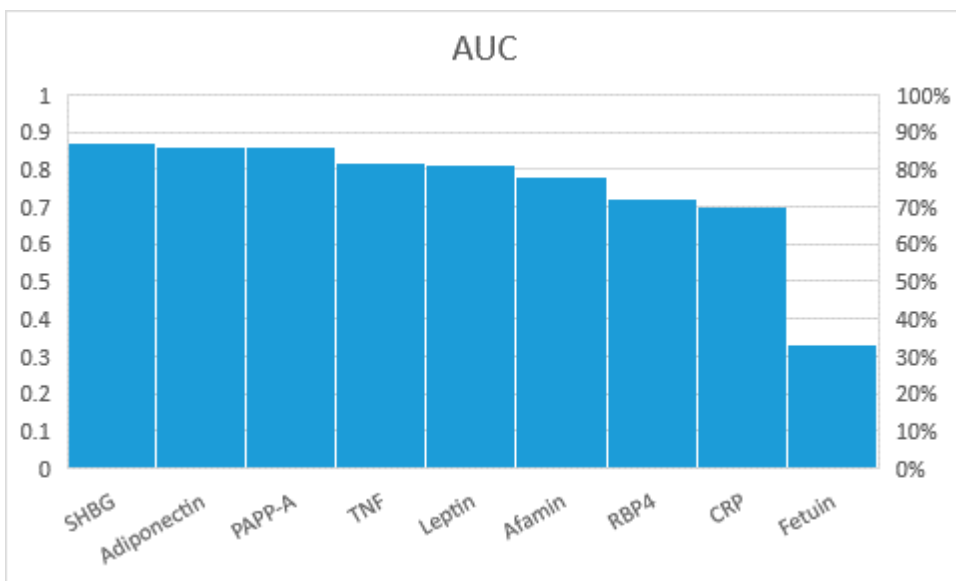


* no information on test performance at the time of GDM diagnosis was found for the following biomarkers: fetuin, omentin, IL-6, TNF, afamin, hCG, CRP, Nesfatin-1, PAPP-A.

**highest reported AUC was considered for this table

AUC: area under the curve; IL-6: Interleukin 6; TNF: Tumor Necrosis Factor; hCG: Human Chorionic Gonadotropin; SHBG: Sex Hormone Binding Protein; CRP: C-Reactive Protein; PAPP-A: Pregnancy-Associated Plasma Protein A; RBP4: Retinol Binding Protein 4

Figure S2: Reported AUC for prediction of GDM.



*no information on test performance as a predictive indicator of GDM was found for the following biomarkers: chemerin, omentin, IL-6, CD59, hCG, Nesfatin-1.

**highest reported AUC was considered for this table

