Supplementary Table 5. Information of the involvements of key genes in metabolic processes, and corresponding active components that indirectly regulate these processes through targeting key genes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Gene names | Descriptions of pathways where key genes were involved | Regulation of key genes in T2DM | Active components that target key genes | Compound types of active components |
| INS | insulin | Down | Apigenin | Flavonoids |
| INS | insulin | Down | Genistein | Flavonoids |
| INS | insulin | Down | Rutin | Flavonoids |
| INS | insulin | Down | Obtusinin | Triterpenoid |
| GCK | glucokinase | Down | Genistein | Flavonoids |
| GCK | glucokinase | Down | Genistin | Flavonoids |
| MAPK3 | mitogen-activated protein kinase 3 | Down | Genistein | Flavonoids |
| IGF2 | insulin like growth factor 2 | Down | Quercetin | Flavonoids |
| VEGFA | vascular endothelial growth factor A | Down | Apigenin | Flavonoids |
| VEGFA | vascular endothelial growth factor A | Down | Daidzein | Flavonoids |
| VEGFA | vascular endothelial growth factor A | Down | Genistein | Flavonoids |
| VEGFA | vascular endothelial growth factor A | Down | Quercetin | Flavonoids |
| VEGFA | vascular endothelial growth factor A | Down | Ursolic acid | Triterpenoid |
| HRAS | HRas proto-oncogene, GTPase | Down | Avicularin | Flavonoids |
| HRAS | HRas proto-oncogene, GTPase | Down | Daidzin | Flavonoids |
| HRAS | HRas proto-oncogene, GTPase | Down | Quercetin-3-O-( 6"-feruloyl) -β-D-galactopyranoside | Flavonoids |
| HRAS | HRas proto-oncogene, GTPase | Down | Quercitrin | Flavonoids |
| PCK1 | phosphoenolpyruvate carboxykinase 1 | Down | Myricetin | Flavonoids |
| PCK1 | phosphoenolpyruvate carboxykinase 1 | Down | Biochanin | Flavonoids |
| PCK1 | phosphoenolpyruvate carboxykinase 1 | Down | Daidzein | Flavonoids |
| PCK1 | phosphoenolpyruvate carboxykinase 1 | Down | Formononetin | Flavonoids |
| PCK1 | phosphoenolpyruvate carboxykinase 1 | Down | Genistein | Flavonoids |
| PCK1 | phosphoenolpyruvate carboxykinase 1 | Down | Guaijaverin | Flavonoids |
| PCK1 | phosphoenolpyruvate carboxykinase 1 | Down | Hyperin | Flavonoids |
| PCK1 | phosphoenolpyruvate carboxykinase 1 | Down | Prunetin | Flavonoids |
| PCK1 | phosphoenolpyruvate carboxykinase 1 | Down | Guajadial C | Meroterpenoid |
| PCK1 | phosphoenolpyruvate carboxykinase 1 | Down | Guajadial D | Meroterpenoid |
| GHR | growth hormone receptor | Down | Daidzein | Flavonoids |
| INSR | insulin receptor | Up | Apigenin | Flavonoids |
| INSR | insulin receptor | Up | Kaempferol | Flavonoids |
| INSR | insulin receptor | Up | Quercetin | Flavonoids |
| MAPK1 | mitogen-activated protein kinase 1 | Up | Genistein | Flavonoids |
| MAPK1 | mitogen-activated protein kinase 1 | Up | Quercetin | Flavonoids |
| MAPK1 | mitogen-activated protein kinase 1 | Up | Guavacoumaric acid | Triterpenoid |
| MAPK1 | mitogen-activated protein kinase 1 | Up | Oleanolic acid | Triterpenoid |
| MAPK8 | mitogen-activated protein kinase 8 | Up | Kaempferol | Flavonoids |
| MAPK8 | mitogen-activated protein kinase 8 | Up | Guavaric A | Flavonoids |
| MAPK8 | mitogen-activated protein kinase 8 | Up | Ononin | Flavonoids |
| MAPK8 | mitogen-activated protein kinase 8 | Up | Xanthone | Flavonoids |
| MAPK8 | mitogen-activated protein kinase 8 | Up | Ursolic acid | Triterpenoid |
| MAPK8 | mitogen-activated protein kinase 8 | Up | Guavanoic acid | Triterpenoid |
| TNF | tumor necrosis factor | Up | Apigenin | Flavonoids |
| TNF | tumor necrosis factor | Up | Daidzein | Flavonoids |
| TNF | tumor necrosis factor | Up | Genistein | Flavonoids |
| TNF | tumor necrosis factor | Up | Kaempferol | Flavonoids |
| TNF | tumor necrosis factor | Up | Myricetin | Flavonoids |
| TNF | tumor necrosis factor | Up | Quercetin | Flavonoids |
| TNF | tumor necrosis factor | Up | Rutin | Flavonoids |
| TNF | tumor necrosis factor | Up | Ursolic acid | Triterpenoid |
| PIK3R1 | phosphoinositide-3-kinase regulatory subunit 1 | Up | Hyperin | Flavonoids |
| PIK3R1 | phosphoinositide-3-kinase regulatory subunit 1 | Up | Kaempferol-3-glucoside | Flavonoids |
| PIK3R1 | phosphoinositide-3-kinase regulatory subunit 1 | Up | Diguajadial | Meroterpenoid |
| PIK3R1 | phosphoinositide-3-kinase regulatory subunit 1 | Up | Guadial B | Meroterpenoid |
| PIK3R1 | phosphoinositide-3-kinase regulatory subunit 1 | Up | Guadial C | Meroterpenoid |
| PIK3R1 | phosphoinositide-3-kinase regulatory subunit 1 | Up | Psiguadial B | Meroterpenoid |
| EGFR | epidermal growth factor receptor | Up | Genistein | Flavonoids |
| EGFR | epidermal growth factor receptor | Up | Quercetin | Flavonoids |
| EGFR | epidermal growth factor receptor | Up | Ilelatifol D | Triterpenoid |
| EGFR | epidermal growth factor receptor | Up | Corosolic acid | Triterpenoid |
| EGFR | epidermal growth factor receptor | Up | Psidial B | Meroterpenoid |
| EGFR | epidermal growth factor receptor | Up | Psidial C | Meroterpenoid |
| RELA | RELA proto-oncogene, NF-kB subunit | Up | Apigenin | Flavonoids |
| RELA | RELA proto-oncogene, NF-kB subunit | Up | Daidzein | Flavonoids |
| RELA | RELA proto-oncogene, NF-kB subunit | Up | Denistein | Flavonoids |
| RELA | RELA proto-oncogene, NF-kB subunit | Up | Kaempferol | Flavonoids |
| RELA | RELA proto-oncogene, NF-kB subunit | Up | Myricetin | Flavonoids |
| RELA | RELA proto-oncogene, NF-kB subunit | Up | Quercetin | Flavonoids |
| RELA | RELA proto-oncogene, NF-kB subunit | Up | Rutin | Flavonoids |
| RELA | RELA proto-oncogene, NF-kB subunit | Up | Ursolic acid | Triterpenoid |
| GSK3B | glycogen synthase kinase 3 beta | Up | Daidzin | Flavonoids |
| GSK3B | glycogen synthase kinase 3 beta | Up | Formononetin | Flavonoids |
| GSK3B | glycogen synthase kinase 3 beta | Up | Olmelin | Flavonoids |
| GSK3B | glycogen synthase kinase 3 beta | Up | Prunetin | Flavonoids |
| GSK3B | glycogen synthase kinase 3 beta | Up | Guavaric A | Flavonoids |
| GSK3B | glycogen synthase kinase 3 beta | Up | Morin-3-O-α-L-lyxopyranoside | Flavonoids |
| GSK3B | glycogen synthase kinase 3 beta | Up | Quercitrin | Flavonoids |
| GSK3B | glycogen synthase kinase 3 beta | Up | Goreishic acid I | Triterpenoid |
| GSK3B | glycogen synthase kinase 3 beta | Up | Uvoal | Triterpenoid |
| GSK3B | glycogen synthase kinase 3 beta | Up | Guavacoumaric acid | Triterpenoid |
| GSK3B | glycogen synthase kinase 3 beta | Up | Guavanoic acid | Triterpenoid |
| GSK3B | glycogen synthase kinase 3 beta | Up | Jacoumaric acid | Triterpenoid |
| GSK3B | glycogen synthase kinase 3 beta | Up | Diguajadial | Meroterpenoid |
| GSK3B | glycogen synthase kinase 3 beta | Up | Guapsidial A | Meroterpenoid |
| GSK3B | glycogen synthase kinase 3 beta | Up | Psiguadial A | Meroterpenoid |
| GSK3B | glycogen synthase kinase 3 beta | Up | Psiguadial D | Meroterpenoid |
| AKT1 | AKT serine/threonine kinase 1 | Up | Apigenin | Flavonoids |
| AKT1 | AKT serine/threonine kinase 1 | Up | Genistein | Flavonoids |
| AKT1 | AKT serine/threonine kinase 1 | Up | Kaempferol | Flavonoids |
| AKT1 | AKT serine/threonine kinase 1 | Up | Quercetin | Flavonoids |
| ERBB2 | erb-b2 receptor tyrosine kinase 2 | Up | Genistein | Flavonoids |
| ERBB2 | erb-b2 receptor tyrosine kinase 2 | Up | Quercetin | Flavonoids |
| PTEN | phosphatase and tensin homolog | Up | Genistein | Flavonoids |
| PTEN | phosphatase and tensin homolog | Up | Quercetin | Flavonoids |
| BCL2 | BCL2 apoptosis regulator | Up | Apigenin | Flavonoids |
| BCL2 | BCL2 apoptosis regulator | Up | Genistein | Flavonoids |
| BCL2 | BCL2 apoptosis regulator | Up | Kaempferol | Flavonoids |
| BCL2 | BCL2 apoptosis regulator | Up | Quercetin | Flavonoids |
| BCL2 | BCL2 apoptosis regulator | Up | Ursolic acid | Triterpenoid |
| BCL2L1 | BCL2 like 11 | Up | Apigenin | Flavonoids |
| BCL2L1 | BCL2 like 11 | Up | Quercetin | Flavonoids |
| BCL2L1 | BCL2 like 11 | Up | Ursolic acid | Triterpenoid |
| BCL2L1 | BCL2 like 11 | Up | Guadial A2 | Meroterpenoid |
| BCL2L1 | BCL2 like 11 | Up | Guadial C | Meroterpenoid |
| MYC | MYC proto-oncogene, bHLH transcription factor | Up | Quercetin | Flavonoids |
| MET | MET proto-oncogene, receptor tyrosine kinase | Up | Guajanoic acid | Triterpenoid |
| MET | MET proto-oncogene, receptor tyrosine kinase | Up | Guadial A | Meroterpenoid |
| MET | MET proto-oncogene, receptor tyrosine kinase | Up | Guapsidial A | Meroterpenoid |
| MET | MET proto-oncogene, receptor tyrosine kinase | Up | Psidial A | Meroterpenoid |
| MET | MET proto-oncogene, receptor tyrosine kinase | Up | Psidial B | Meroterpenoid |
| MET | MET proto-oncogene, receptor tyrosine kinase | Up | Psidial C | Meroterpenoid |
| MET | MET proto-oncogene, receptor tyrosine kinase | Up | Psiguadial B | Meroterpenoid |
| PIK3R1 | phosphoinositide-3-kinase regulatory subunit 1 | Up | Hyperin | Flavonoids |
| PIK3R1 | phosphoinositide-3-kinase regulatory subunit 1 | Up | Kaempferol-3-glucoside | Flavonoids |
| PIK3R1 | phosphoinositide-3-kinase regulatory subunit 1 | Up | Diguajadial | Meroterpenoid |
| PIK3R1 | phosphoinositide-3-kinase regulatory subunit 1 | Up | Guadial B | Meroterpenoid |
| PIK3R1 | phosphoinositide-3-kinase regulatory subunit 1 | Up | Guadial C | Meroterpenoid |
| PIK3R1 | phosphoinositide-3-kinase regulatory subunit 1 | Up | Psiguadial B | Meroterpenoid |
| FGF2 | fibroblast growth factor 2 | Up | Ursolic acid | Triterpenoid |
| PPARA | peroxisome proliferator activated receptor alpha | Up | Genistein | Flavonoids |
| PPARA | peroxisome proliferator activated receptor alpha | Up | Quercetin | Flavonoids |
| PPARA | peroxisome proliferator activated receptor alpha | Up | Quercitrin | Flavonoids |
| PPARA | peroxisome proliferator activated receptor alpha | Up | 2α-hydroxyoleanolic acid | Triterpenoid |
| PPARA | peroxisome proliferator activated receptor alpha | Up | Corosolic acid | Triterpenoid |
| PPARA | peroxisome proliferator activated receptor alpha | Up | Psidiumoic acid | Triterpenoid |
| PPARA | peroxisome proliferator activated receptor alpha | Up | Psiguadial C | Meroterpenoid |
| PTPN11 | protein tyrosine phosphatase non-receptor type 11 | Up | 2α-hydroxyoleanolic acid | Triterpenoid |
| PTPN11 | protein tyrosine phosphatase non-receptor type 11 | Up | Jacoumaric acid | Triterpenoid |
| PTPN11 | protein tyrosine phosphatase non-receptor type 11 | Up | Obtusol | Triterpenoid |
| PTPN11 | protein tyrosine phosphatase non-receptor type 11 | Up | Psidiumoic acid | Triterpenoid |
| PTPN11 | protein tyrosine phosphatase non-receptor type 11 | Up | Psiguadial D | Meroterpenoid |
| STAT3 | signal transducer and activator of transcription 3 | Up | Genistein | Flavonoids |
| STAT3 | signal transducer and activator of transcription 3 | Up | Myricetin | Flavonoids |
| STAT3 | signal transducer and activator of transcription 3 | Up | Ursolic acid | Triterpenoid |