I. Insulin-dependent systemic effect

- Circulating Glucose
- IR/IGF-1R
- GLUT4
- PI3K
- AKT
- PTEN
- AMPK
- LKB1
- TSC1/2
- mTOR

- Cell proliferation
- Cell death
- Cell cycle arrest
- Protein translation
- Tumor development

II. Insulin-independent direct effect

- Liver
- Glucose release
- Hepatic Gluconeogenesis
- Circulating Insulin
- OCTs
- MATEs
- Epithelia-derived cancer cells
- Stromal cells
- Endometrium
- Nucleus

- Metformin
- AMPK
- mTOR
- PTEN
- OCTs
- MATEs

- tumor suppressors
- main targets of metformin