**Highlights**

1. We have demonstrated the effect of PVT1 on GBC cells proliferation *in vitro* and *in vivo*;
2. We have proved for the first time that PVT1 downregulated the expression of miR-18b-5p through promoting the DNA promoter methylation of miR-18b-5p by recruiting DNMT1 via EZH2;
3. We have elucidated the potential mechanism of PVT1 and confirmed the PVT1/ miR-18b-5p/ HIF1A regulation axis in GBC for the first time, and indicated that PVT1 could be a potential therapeutic target for GBC.