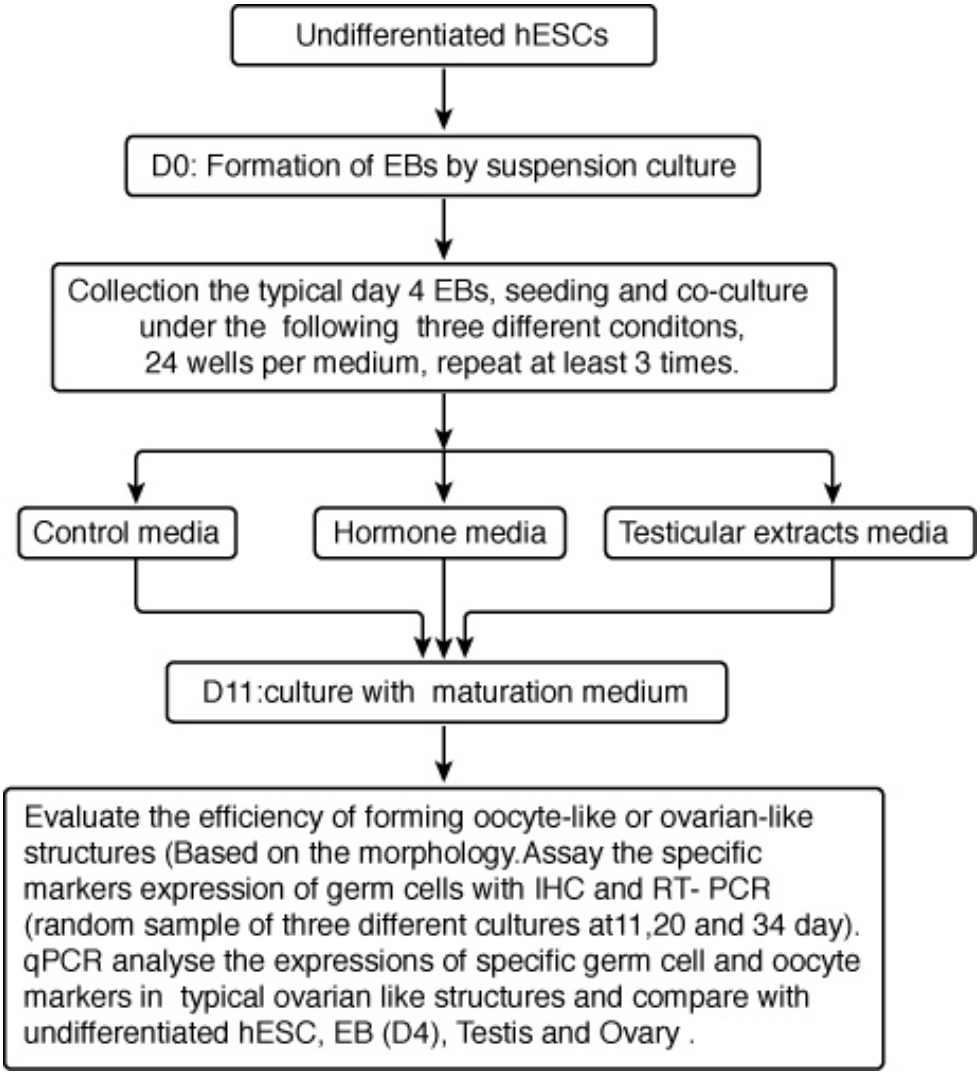
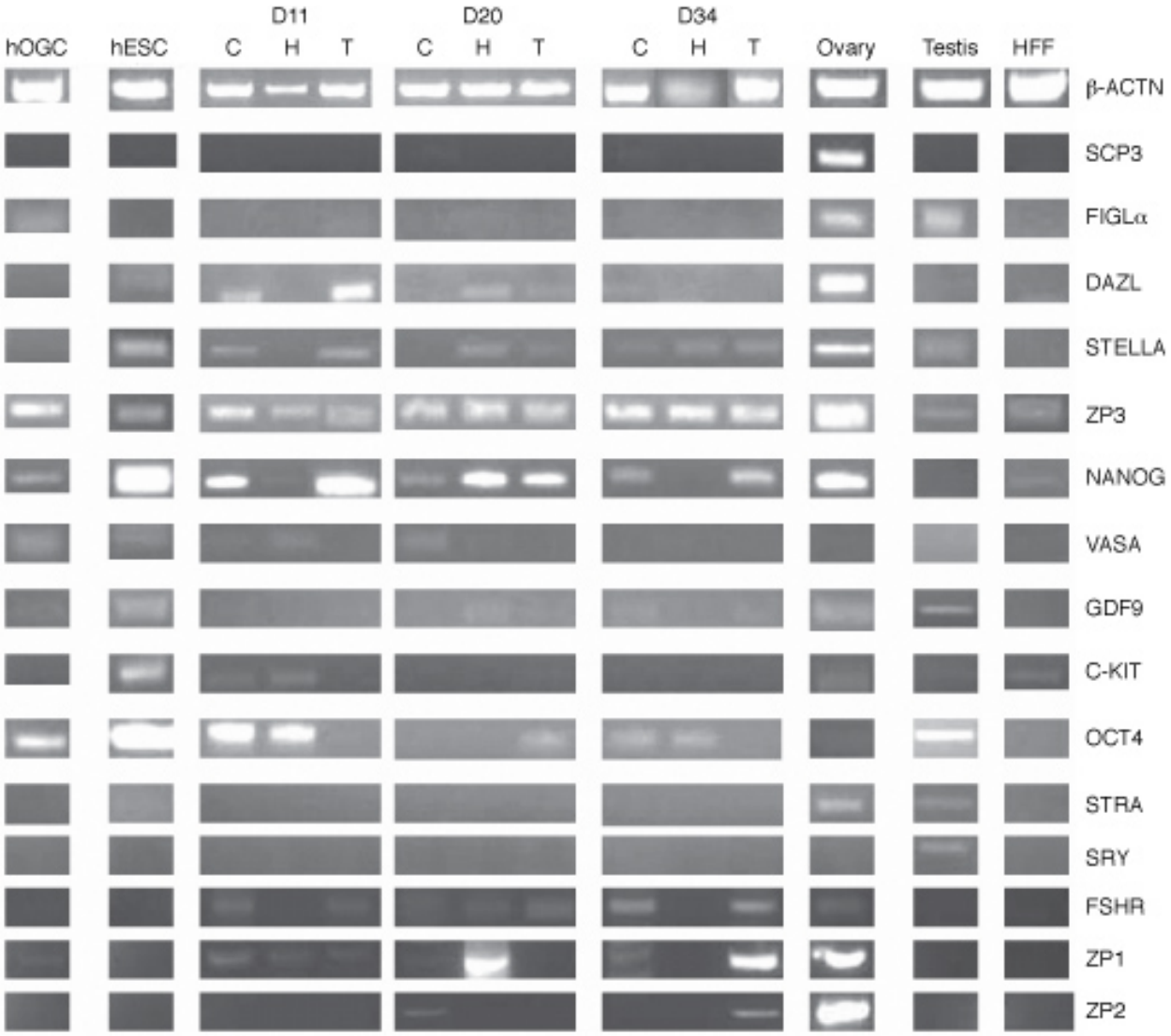
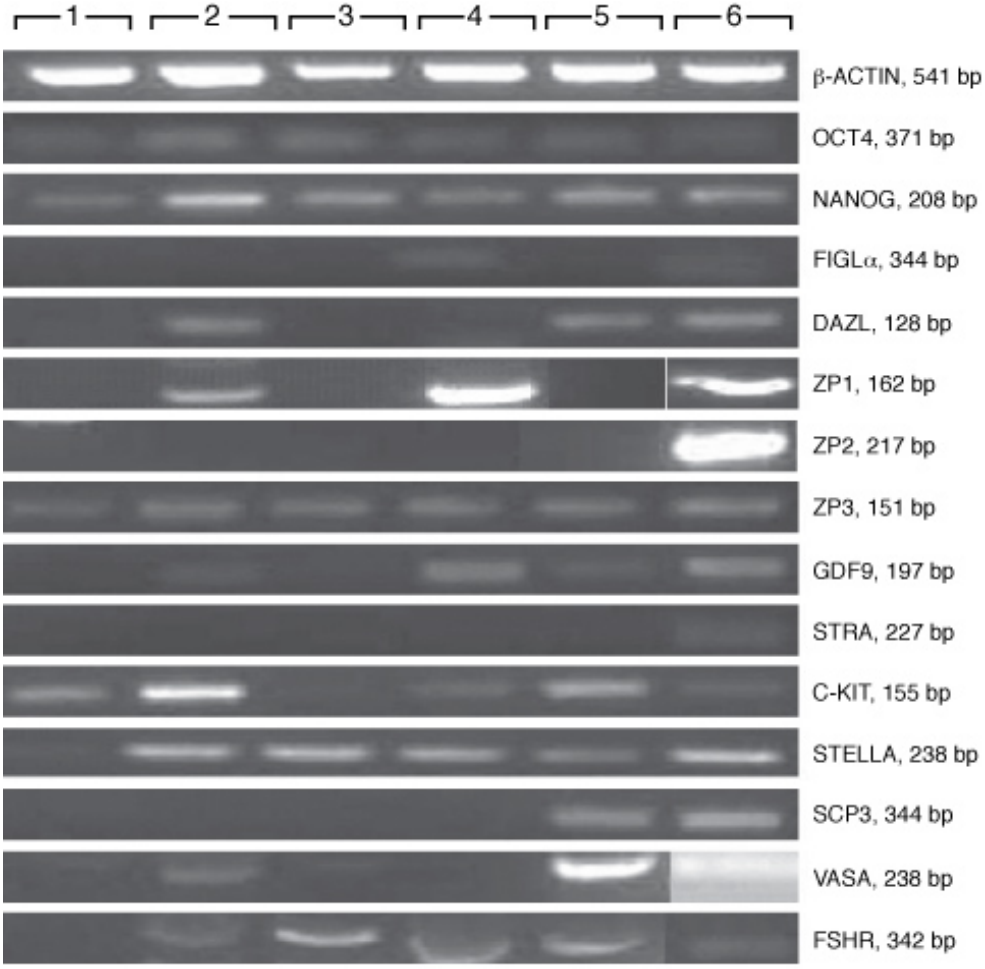
SUPPLEMENTARY MATERIAL



Supplementary Fig. (1). A flow diagram for obtaining ovarian-like structures from hESC.



Supplementary Fig. (2). RT-PCR expressions of germ cell markers: OCT4, NANOG, DAZL, C-KIT, STELLA, SCP3, VASA and oocyte markers: FIGLα, ZP1, ZP2, ZP3, GDF9 and FSHR on day 11 20, and 34 cultures with different treatments; C – Control (KO-DMEM with FBS), H- Hormone, and T - Testicular extracts. Samples were collected randomly and analyzed by RT-PCR, ß-actin served as an internal standard. Markers were examined in human fetal ovary germ cells (hOGC), undifferentiated Endeavour-1, 19-week human fetal ovary (Ovary), 19-week human fetal testis (Testis) and human fetal fibroblasts (HFF) were used as references. Most germ cell and oocyte markers were expressed in ovaries, hOGCs and treated cells, not expressed in HFF; Oocyte markers: ZP1 and ZP2 were not expressed in the testis.



Supplementary Fig. (3). Germ cell markers are expressed in OLS derived from hESC. OCT4, NANOG, DAZL, C-KIT, STELLA, SCP3, VASA and oocyte markers, FIGLα, ZP1, ZP3, GDF9 and FSHR on day 11 and 28 in OLS; STRA and SCP3 were weakly expressed. OLS, human fetal testis and ovary were analyzed by RT-PCR; ß-actin served as an internal standard. Lane1-3: OLS (D11); Lane 4: OLS (D28); Lane 5: 19 week human fetal testis; Lane 6: 19 week human fetal ovary.