

Description of Additional Supplementary Files

File name: Supplementary Data 1

Description: Sequence analysis of transcriptome of denuded oocyte between control group and HDACi 4b-treated group.

File name: Supplementary Data 2

Description: Sequence analysis of transcriptome of ovarian follicles mural granulosa cells between *Hdac3*^{flox/flox} mice and *Hdac3*^{CKO} mice.

File name: Supplementary Data 3

Description: Sequence analysis of transcriptome of cultured ovarian follicle mural granulosa cells between control group and HDACi 4b-treated group.

File name: Supplementary Data 4

Description: Proteomic analysis of HDAC3-binding proteins through co-immunoprecipitation coupled with mass spectrometry (LC-MS) with HDAC3 antibody.

File name: Supplementary Data 5

Description: Proteomic analysis of non-specific binding proteins through co-immunoprecipitation coupled with mass spectrometry (LC-MS) with IgG.

File name: Supplementary Data 6

Description: Proteomic analysis of HDAC3-binding proteins on chromatin through cross-linking co-immunoprecipitation coupled with mass spectrometry (LC-MS) with HDAC3 antibody and IgG.

File name: Supplementary Data 7

Description: Potential transcription factors that bind the *Areg* promoter obtained by JASPAR data.

File name: Supplementary Data 8

Description: Proteomic analysis of transcription factors that bind the *Areg* promoter through DNA-pulldown coupled with mass spectrometry (LC-MS).