

Publications

Recent Publications

PRDM15 loss-of-function links NOTCH and WNT/PCP signaling to patterning defects in Holoprosencephaly.

Mzoughi S, Di Tullio F, Low D, Ashraf S, Motofeanu C, Ong S, Wollmann H, Wun C, Kruszka P, Muenke M, Hildebrandt F, Dunn NR, Messerschmidt DM, Guccione E.

Science Advances in press, 2019 Aug

The NRF1/CDK2 axis regulates Ehmt1 expression during meiotic prophase.

Palmer N, Talib Z, Ratnacaram CK, Low D, Bisteau X, Lee J, Pfeiffenberger E, Wollmann H, Tan J, Wee S, Sobota R, Gunaratne J, Messerschmidt DM, Guccione E, Kaldis P.

JCB in press, 2019 Jun

The KRAB-Zinc finger protein ZFP708 mediates epigenetic repression at RMER19B retrotransposons.

Seah MKY, Wang Y, Goy PV, Loh HM, Peh WJ, Loh DHP, Han BY, Wong E, Leong EL, Wolf G, Mzoughi S, Wollmann H, Macfarlan TS, Guccione E, Messerschmidt DM.

Development. 2019 Mar 7. doi: 10.1242/dev.170266.

PRDM15 safeguards naive pluripotency by transcriptionally regulating WNT and MAPK-ERK signaling.

Mzoughi S, Zhang J, Hequet D, Teo SX, Fang H, Xing QR, Bezzi M, Seah MKY, Ong SLM, Shin EM, Wollmann H, Wong ESM, Al-Haddawi M, Stewart CL, Tergaonkar V, Loh YH, Dunn NR, Messerschmidt DM, Guccione E.

Nat Genet. 2017 Jul 24. doi: 10.1038/ng.3922.

ELABELA deficiency promotes preeclampsia and cardiovascular malformations in mice.

Ho L, Van Dijk M, Chye STJ, Messerschmidt DM, Chng SC, Ong S, Yi LK, Boussata S, Goh GH, Afink GB, Lim CY, Dunn NR, Solter D, Knowles BB, Reversade B.

Science. 2017 Jun 29. pii: eaam6607. doi: 10.1126/science.aam6607.

Loss of maternal Trim28 causes male-predominant early embryonic lethality.

Sampath Kumar A, Seah MK, Ling KY, Wang Y, Tan JH, Nitsch S, Lim SL, Lorthongpanich C, Wollmann H, Low DH, Guccione E, Messerschmidt DM.

Genes Dev. 2017 Jan 1;31(1):12-17. doi: 10.1101/gad.291195.116.

β -Catenin-mediated adhesion is required for successful preimplantation mouse embryo development.

Messerschmidt DM, de Vries WN, Lorthongpanich C, Balu S, Solter D, Knowles BB.

Development. 2016 Jun 1;143(11):1993-9. doi: 10.1242/dev.133439.

Multiplexed locus-specific analysis of DNA methylation in single cells.

Cheow LF, Quake SR, Burkholder WF, Messerschmidt DM.

Nat Protoc. 2015 Apr;10(4):619-31. doi: 10.1038/nprot.2015.041.

DNA methylation dynamics during epigenetic reprogramming in the germline and preimplantation embryos.

Messerschmidt DM*, Knowles BB, Solter D.

Genes Dev. 2014 Apr 15;28(8):812-28. doi: 10.1101/gad.234294.113. Review.

(*corresponding author)

Single-cell DNA-methylation analysis reveals epigenetic chimerism in preimplantation embryos.

Lorthongpanich C, Cheow LF, Balu S, Quake SR, Knowles BB, Burkholder WF, Solter D, Messerschmidt DM.

Science. 2013 Sep 6;341(6150):1110-2. doi: 10.1126/science.1240617.

The nuage mediates retrotransposon silencing in mouse primordial ovarian follicles.

Lim AK, Lorthongpanich C, Chew TG, Tan CW, Shue YT, Balu S, Gounko N, Kuramochi-Miyagawa S, Matzuk MM, Chuma S, Messerschmidt DM, Solter D, Knowles BB.

Development. 2013 Sep;140(18):3819-25. doi: 10.1242/dev.099184.

Temporal reduction of LATS kinases in the early preimplantation embryo prevents ICM lineage differentiation.

Lorthongpanich C, Messerschmidt DM, Chan SW, Hong W, Knowles BB, Solter D.

Genes Dev. 2013 Jul 1;27(13):1441-6. doi: 10.1101/gad.219618.113.

A genetic and developmental pathway from STAT3 to the OCT4-NANOG circuit is essential for maintenance of ICM lineages in vivo.

Do DV, Ueda J, Messerschmidt DM, Lorthongpanich C, Zhou Y, Feng B, Guo G, Lin PJ, Hossain MZ, Zhang W, Moh A, Wu Q, Robson P, Ng HH, Poellinger L, Knowles BB, Solter D, Fu XY.

Genes Dev. 2013 Jun 15;27(12):1378-90. doi: 10.1101/gad.221176.113.

Trim28 is required for epigenetic stability during mouse oocyte to embryo transition.
Messerschmidt DM*, de Vries W, Ito M, Solter D, Ferguson-Smith A, Knowles BB.
Science. 2012 Mar 23;335(6075):1499-502. doi: 10.1126/science.1216154. (*corresponding author)

Nanog is required for primitive endoderm formation through a non-cell autonomous mechanism.

Messerschmidt DM*, Kemler R.
Dev Biol. 2010 Aug 1;344(1):129-37. doi: 10.1016/j.ydbio.2010.04.020. Epub 2010 May 12.
(*corresponding author)

Zebrafish Pou5f1-dependent transcriptional networks in temporal control of early development.

Onichtchouk D, Geier F, Polok B, Messerschmidt DM, Mössner R, Wendik B, Song S, Taylor V, Timmer J, Driever W.
Mol Syst Biol. 2010;6:354. doi: 10.1038/msb.2010.9. Epub 2010 Mar 9.

Conservation and diversification of Wnt signaling function during the evolution of nematode vulva development.

Zheng M, Messerschmidt DM, Jungblut B, Sommer RJ.
Nat Genet. 2005 Mar;37(3):300-4. Epub 2005 Feb 6.

Other publications

From Germline to Soma: Epigenetic Dynamics in the Mouse Preimplantation Embryo.
Seah MKY, Messerschmidt DM.
Curr Top Dev Biol. 2018;128:203-235. doi: 10.1016/bs.ctdb.2017.10.011.

Single Cell Restriction Enzyme-Based Analysis of Methylation at Genomic Imprinted Regions in Preimplantation Mouse Embryos.

Ling KY, Cheow LF, Quake SR, Burkholder WF, Messerschmidt DM.
Methods Mol Biol. 2017;1605:171-189. doi: 10.1007/978-1-4939-6988-3_12.

A twist in zygotic reprogramming.

Messerschmidt DM.
Nat Cell Biol. 2016 Feb;18(2):139-40. doi: 10.1038/ncb3304.

Epigenetic Control of Early Mouse Development.

Lim CY, Knowles BB, Solter D, Messerschmidt DM.

Curr Top Dev Biol. 2016;120:311-60. doi: 10.1016/bs.ctdb.2016.05.002.

Erase-Maintain-Establish: Natural Reprogramming of the Mammalian Epigenome.

Leseva M, Knowles BB, Messerschmidt DM, Solter D.

Cold Spring Harb Symp Quant Biol. 2015;80:155-63. doi: 10.1101/sqb.2015.80.027441.

Review.

Should I stay or should I go: protection and maintenance of DNA methylation at imprinted genes.

Messerschmidt DM.

Epigenetics. 2012 Sep;7(9):969-75.

Inherent Nuclear Reprogramming in Mammalian Embryos

Lim AK, Kai T, Knowles BB, Messerschmidt DM.

Nuclear Reprogramming and Stem Cells, Humana Press. (2011)

Wnt Signalling in Development

Rudloff S, Messerschmidt DM, Kemler R.

Handbook of Cell Signaling, Academic Press. (2009)