

# Safeguarding parental identity: Dnmt1 maintains imprints during epigenetic reprogramming in early embryogenesis

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During early mammalian embryogenesis, the genome undergoes global epigenetic reprogramming, losing most of its methylation before re-establishing it de novo at implantation. However, faithful maintenance of methylation at imprinted genes during this process is vital for embryonic development, but the DNA methyltransferase responsible for this maintenance has remained unknown. In this issue of *Genes & Development*, Hirasawa and colleagues (pp. 1607–1616) show that Dnmt1, and not Dnmt3a or Dnmt3b, maintains methylation at genomic imprints during preimplantation development.

*Dnmt1*

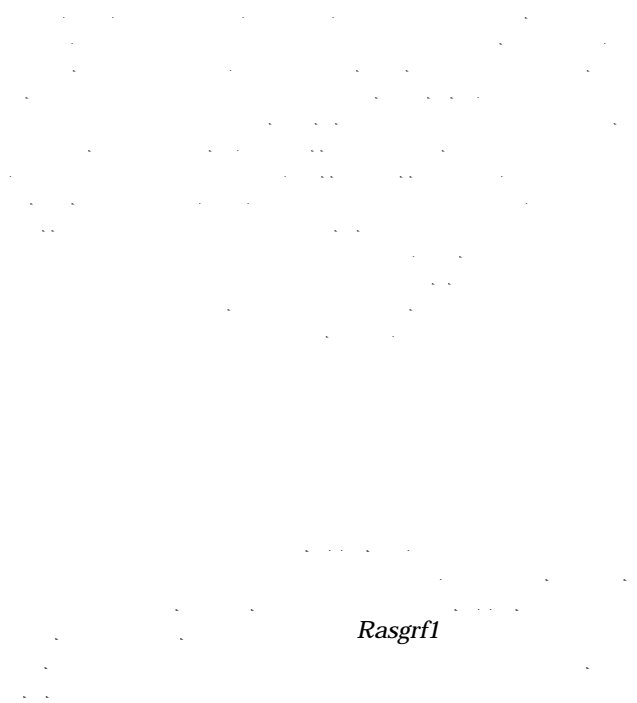
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Gene regulation and DNA methylation

*trans*



Figure 1.



Finding Dnmt1s

Dnmt1s takes care of imprints

*H19*

*Dnmt1*

*Rasgrf1*

*Rasgrf1*

## The new questions

## Acknowledgments

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## References

*Cell* 128:

*Genes Dev.* 16:

*Science*

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