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## Progesterone Receptor Membrane Component-1 (PGRMC1) nucleolar localization in bovine granulosa cells and its putative interaction with nucleolin.

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### Abstract

PGRMC1 is a multifunctional protein that is found in multiple subcellular compartments, suggesting a specific function at each site. Among the several subcellular sites of expression, PGRMC1 was found in the nucleolus of human cells (Ahmad et al. 2009) and bovine zygotes (Luciano et al. 2010). However, the role at this site is not clear. Therefore, the aim of this study is to assess whether PGRMC1 modulates nucleolar function. Immunofluorescence experiments confirmed nucleolar localization in rat spontaneously immortalized granulosa cells, bovine granulosa cells (bGC) and bovine oocytes. Moreover, in bGC PGRMC1 co-localizes with nucleolin, a well-known nucleolar marker exerting important functions within the nucleolus. Additionally, siRNA mediated gene knockdown experiments showed that when PGRMC1 expression is silenced, nucleolin localization shifts from the nucleolus to the nucleoplasm, suggesting a PGRMC1/nucleolin functional association. However, *in situ proximity ligation assay* did not detect a direct interaction between these two proteins, suggesting the involvement of additional molecules that could mediate PGRMC1/nucleolin interaction.

In conclusion, these studies suggest a function for PGRMC1 in nucleolar activity and set the stage for further investigations aimed at dissecting PGRMC1's molecular mechanisms of action in the nuclear compartment.

### References

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