# Article information:

Structures of the Human GTPase MMAA and Vitamin B12-dependent Methylmalonyl-CoA Mutase and Insight into Their Complex Formation\* - Journal of Biological Chemistry
[https://www.jbc.org/article/S0021-9258(20)60685-8/fulltext](https://www.jbc.org/article/S0021-9258%2820%2960685-8/fulltext)

# Article summary:

1. Vitamin B12 is essential for the function of two human enzymes, methionine synthase and methylmalonyl-CoA mutase (MUT), which require different forms of cobalamin as cofactors.

2. MMAA, a processing protein involved in the mitochondrial assembly of AdoCbl into MUT, interacts with MUT and modulates its GTPase activity.

3. The interaction between MMAA and MUT is nucleotide-selective for MMAA and apoenzyme-dependent for MUT, and plays a gatekeeping role in AdoCbl assembly. A homoallelic patient mutation of MMAA, G188R, abrogates this interaction.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

作为一篇科学研究论文，该文章并没有明显的偏见或宣传内容。然而，它可能存在一些局限性和缺失的考虑点。

首先，文章主要关注了两个人类酶（MMAA和MUT）以及它们之间的相互作用，但并没有探讨这些酶在整个维生素B12代谢途径中的作用。此外，文章也没有涉及到其他与这些酶相关的遗传疾病。

其次，文章提到了一个患有MMAA基因突变的患者，并指出该突变导致了MMAA和MUT之间相互作用的丧失。然而，文章并没有提供更多关于这位患者或其他可能存在的风险因素的信息。

最后，在描述MMAA和MUT之间相互作用时，文章强调了GTP结合和水解对于复合物形成的重要性。然而，文章并未探讨这种相互作用是否受到其他因素（如其他蛋白质或代谢产物）的影响。

总体来说，尽管该文章是一篇科学研究论文，并且在描述实验结果方面非常详细和准确，但仍存在一些局限性和缺失考虑点。

# Topics for further research:

* 维生素B12代谢途径中的其他酶和作用
* 其他与MMAA和MUT相关的遗传疾病
* 患有MMAA基因突变的患者的更多信息和风险因素
* 其他蛋白质或代谢产物对MMAA和MUT相互作用的影响
* MMAA和MUT在细胞代谢中的作用和调节
* 该研究的临床应用和潜在治疗方法

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