# Article information:

MIR164b represses iron uptake by regulating the NAC domain transcription factor5-Nuclear Factor Y, Subunit A8 module in Arabidopsis | Plant Physiology | Oxford Academic
<https://academic.oup.com/plphys/article/189/2/1095/6548169?login=true>

# Article summary:

1. MiR164b regulates iron uptake in Arabidopsis roots by repressing the expression of NAC domain transcription factor5 (NAC5) and Nuclear Factor Y, Subunit A8 (NFYA8) module.

2. Fe deficiency leads to the repression of miR164 expression in Arabidopsis roots, resulting in increased primary root length, lateral root number, ferric reductase activity, and mRNA abundance of IRT1 and FRO2.

3. The NAC5-NFYA8 module is involved in the transcriptional regulation of genes related to Fe homeostasis in Arabidopsis under Fe-deficient conditions. Overexpression of NAC5 or NFYA8 increases primary root length, lateral root number, ferric reductase activity, and mRNA abundance of IRT1 and FRO2 under Fe-deficient conditions.

# Article rating:

Appears moderately imbalanced: The article provides some useful information, but is missing several important points or pieces of evidence that would be required to present the discussed topics in a balanced and reliable way. You are encouraged to seek a more balanced perspective on the presented issues by exploring the provided research topics and looking at different information sources.

# Article analysis:

该文章提出了MIR164b在调节NAC5-NFYA8模块中对铁吸收的抑制作用。然而，该文章存在一些偏见和不足之处。

首先，该文章只关注了植物对铁缺乏的响应，而忽略了植物对铁过量的响应。事实上，铁过量也会导致氧化损伤，并且最近的研究表明miRNA在这方面也发挥着重要作用。因此，在探索植物对铁的响应时，需要同时考虑到缺乏和过量两种情况。

其次，该文章没有充分考虑到miR164家族成员在铁缺乏响应中的不同功能。作者只关注了mir164b突变体，在其他成员中可能存在不同的功能和表达模式。因此，在深入研究miRNA在植物对铁缺乏响应中的作用时，需要更全面地考虑miRNA家族成员之间的差异。

此外，该文章没有提供足够的证据来支持其主张。例如，在描述NAC5-NFYA8模块时，作者没有提供足够的实验证据来证明NFYA8是NAC5直接调控的目标基因。因此，在进一步研究植物对铁缺乏响应时，需要更多的实验证据来支持作者的主张。

最后，该文章可能存在一些偏袒。例如，在描述NAC5-NFYA8模块时，作者只关注了NFYA8在铁缺乏响应中的作用，并没有探讨其在其他生物学过程中的功能。因此，在呈现研究结果时，需要平等地考虑到所有相关因素，并避免偏袒某些因素。

# Topics for further research:

* Iron excess response in plants
* Functional diversity of miR164 family members
* Additional experimental evidence for NAC5-NFYA8 module
* Consideration of other biological processes involving NFYA8
* Avoidance of bias in presenting research results
* Comprehensive analysis of all relevant factors in studying plant iron deficiency response

# Report location:

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