

Version 1

Jun 30, 2020

Protocols from Sales et al. (2020) Rubisco activity: challenges and opportunities of NADH-linked microtiter plate-based and ^{14}C -based assays V.1

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1 Works for me [dx.doi.org/10.17504/protocols.io.bf8djrs6](https://doi.org/10.17504/protocols.io.bf8djrs6)



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ABSTRACT

This collection of protocols includes four assays for measuring Rubisco activity that are used and discussed in the manuscript "Rubisco activity: challenges and opportunities of NADH-linked microtiter plate-based and ^{14}C -based assays" (Sales et al. 2020).

Three of the protocols are NADH-linked microtiter plate-based assays for Rubisco activity that use alternative coupling enzymes:

1. GAPDH-GlyPDH, glyceraldehyde-3-phosphate-dehydrogenase and glycerolphosphate-dehydrogenase;
2. PEPC-MDH, phosphoenolpyruvate-carboxylase and malate-dehydrogenase;
3. PK-LDH, pyruvate-kinase and lactate-dehydrogenase.

The radiometric assay for Rubisco activity measures the incorporation of $^{14}\text{CO}_2$ into 3-phosphoglycerate (3-PGA).

The fifth protocol describes the purification of 2,3-bisphosphate-dependent phosphoglycerate mutase (dPGM), which is required for the NADH-linked microtiter plate-based assays 2 (PEPC-MDH) and 3 (PK-LDH).

THIS COLLECTION ACCOMPANIES THE FOLLOWING PUBLICATION

Sales CRG, Silva AB, Carmo-Silva E. 2020. Measuring Rubisco activity: challenges and opportunities of NADH-linked microtiter plate-based and ^{14}C -based assays. Journal of Experimental Botany, <https://doi.org/10.1093/jxb/eraa289>

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KEYWORDS

dPGM, enzyme activity assay, GAPDH-GlyPDH, NADH, PEPC-MDH, PK-LDH, Rubisco, microtiter plate

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GUIDELINES



Please, check each protocols for detailed guidelines.



FILES

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¹⁴CO₂-based assay for measuring Rubisco activity & activation state
by **Cristina Rodrigues Gabriel Sales**
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NADH-linked microtiter plate-based assay for measuring Rubisco activity & activation state – GAPDH-GlyPDH
by **Cristina Rodrigues Gabriel Sales**
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NADH-linked microtiter plate-based assay for measuring Rubisco activity & activation state – PEPC-MDH
by **Cristina Rodrigues Gabriel Sales**
- 

NADH-linked microtiter plate-based assay for measuring Rubisco activity & activation state – PK-LDH
by **Cristina Rodrigues Gabriel Sales**
- 

Purification of 2,3-bisphosphate-dependent phosphoglycerate mutase (dPGM)
by **Cristina Rodrigues Gabriel Sales**