A Manuscript Microscope 'Sentence Audit' of:

α1-COP delivers sphingolipid modifiers and controls plasmodesmal callose deposition in Arabidopsis

What is the Manuscript Microscope Sentence Audit?

The Manuscript Microscope Sentence Audit is a research paper introspection system that parses the text of your manuscript into minimal sentence components for faster, more accurate, enhanced proofreading.

Why use a Sentence Audit to proofread your manuscript?

- Accelerated Proofreading: Examine long technical texts in a fraction of the usual time.
- Superior Proofreading: Detect subtle errors that are invisible to traditional methods.
- Focused Proofreading: Inspect each individual sentence component in isolation.
- Reliable Proofreading: Ensure every single word of your manuscript is correct.
- Easier Proofreading: Take the hardship out of crafting academic papers.

Bonus 1: Improved Productivity: Rapidly refine rough drafts to polished papers.
Bonus 2: Improved Authorship: Cultivate a clear, concise, consistent, writing style.
Bonus 3: Improved Reputation: Become known for rigorously precise publications.

Manuscript Source: https://www.biorxiv.org/content/10.1101/2021.03.22.436362v1

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Features of the Sentence Audit:

The Sentence Audit combines two complementary proofreading approaches:

1. Each sentence of your text is parsed and displayed in isolation for focused inspection.
2. Each individual sentence is further parsed into Minimal Sentence Components for a deeper review of the clarity, composition and consistency of the language you used.

The Minimal Sentence Components shown are the smallest coherent elements of each sentence of your text as derived from it's conjunctions, prepositions and selected punctuation symbols (i.e. commas, semicolons, round and square brackets).

The combined approaches ensure easier, faster, more effective proofreading.

Comments and Caveats:

• The sentence parsing is achieved using a prototype natural language processing pipeline written in Python and may include occasional errors in sentence segmentation.

• Depending on the source of the input text, the Sentence Audit may contain occasional html artefacts that are parsed as sentences (E.g. "Download figure. Open in new tab").

• Always consult the original research paper as the true reference source for the text.

Contact Information:

To get a Manuscript Microscope Sentence Audit of any other research paper, simply forward any copy of the text to John.James@OxfordResearchServices.com.

All queries, feedback or suggestions are also very welcome.

Research Paper Sections:

The sections of the research paper input text parsed in this audit.

Section No.	Headings	Sentences
Section: 1	Abstract	13
Section: 2	Introduction	14
N/A	--- --- --- --- --- --- ---	0
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The Sentence Audit Of The Research Paper

Title # α1-COP delivers sphingolipid modifiers and controls plasmodesmal callose deposition in Arabidopsis

S1 [001] Abstract

S1 [002] Callose is a plant cell wall polymer in the form of β-1,3-glucan, which regulates symplasmic channel size at plasmodesmata (PD).

Callose is a plant cell wall polymer ...
... in the form ...
... of β-1,3-glucan, ...
... which regulates symplasmic channel size ...
... at plasmodesmata ...
... (PD).

S1 [003] It plays a crucial role in a variety of processes in plants through the regulation of intercelluar symplasmic continuity.

It plays a crucial role ...
... in a variety ...
... of processes ...
... in plants ...
... through the regulation ...
... of intercelluar symplasmic continuity.

S1 [004] However, how to maintain callose homeostasis at PD in the molecular levels is poorly understood.

However, ...
... how ...
... to maintain callose homeostasis ...
... at PD ...
... in the molecular levels is poorly understood.

S1 [005] To further elucidate the mechanism of PD callose homeostasis, we screened and identified an Arabidopsis mutant plant that exhibited excessive callose deposition at PD.

To further elucidate the mechanism ...
... of PD callose homeostasis, ...
... we screened ...
... and identified an Arabidopsis mutant plant ...
... that exhibited excessive callose deposition ...
... at PD.

S1 [006] Based on the Next-generation sequencing (NGS)-based mapping, other mutant allele analysis, and complementation assay, the mutated gene was shown to be α1-COP, which encodes a member of the COPI coatomer complex comprised of α, β, β′, γ, δ, ε, and ζ subunits.

Based ...
... on the Next-generation sequencing ...
... (NGS)-based mapping, ...
... other mutant allele analysis, ...
... and complementation assay, ...
... the mutated gene was shown ...
... to be α1-COP, ...
... which encodes a member ...
... of the COPI coatomer complex comprised ...
... of α, ...
... β, ...
... β′, ...
... γ, ...
... δ, ...
... ε, ...
... and ζ subunits.

S1 [007] Since there is no report on the link between COPI and callose/PD, it was extremely curious to know the roles of α1-COP or COPI in PD regulation through callose deposition.

Since there is no report ...
... on the link ...
... between COPI ...
... and callose/PD, ...
... it was extremely curious ...
... to know the roles ...
... of α1-COP ...
... or COPI ...
... in PD regulation ...
... through callose deposition.

S1 [008] Here, we report that loss-of-function of α1-COP directly elevates the callose accumulation at PD by affecting subcellular protein localization of callose degradation enzyme PdBG2.

Here, ...
... we report ...
... that loss-of-function ...
... of α1-COP directly elevates the callose accumulation ...
... at PD ...
... by affecting subcellular protein localization ...
... of callose degradation enzyme PdBG2.

S1 [009] This process is linked to ERH1, an inositol phosphoryl ceramide synthase (IPCS), and glucosylceramide synthase (GCS) functions through physical interactions with the α1-COP protein.

This process is linked ...
... to ERH1, ...
... an inositol phosphoryl ceramide synthase ...
... (IPCS), ...
... and glucosylceramide synthase ...
... (GCS) ...
... functions ...
... through physical interactions ...

... with the α1-COP protein.

S1 [010] In addition, the loss-of-function of α1-COP also alters the subcellular localization of ERH1 and GCS proteins, results in a reduction of GlcCers and GlcHCers molecules, which are the key SL species for lipid raft formation.

In addition, ...
... the loss-of-function ...
... of α1-COP also alters the subcellular localization ...
... of ERH1 ...
... and GCS proteins, ...
... results ...
... in a reduction ...
... of GlcCers ...
... and GlcHCers molecules, ...
... which are the key SL species ...
... for lipid raft formation.

S1 [011] According to our findings, we propose that α1-COP protein, together with the SL modifiers controlling lipid raft compositions, regulates the function of GPI-anchored PD proteins and hence the callose turnover at PD and symplastic movement of biomolecules.

According ...
... to our findings, ...
... we propose ...
... that α1-COP protein, ...
... together ...
... with the SL modifiers controlling lipid raft compositions, ...
... regulates the function ...
... of GPI-anchored PD proteins ...
... and hence the callose turnover ...
... at PD ...
... and symplastic movement ...
... of biomolecules.

S1 [012] Our findings provide the first key clue to link the COPI-mediated intracellular trafficking pathway to the callose-mediated intercellular signaling pathway through PD.

Our findings provide the first key clue ...
... to link the COPI-mediated intracellular trafficking pathway ...
... to the callose-mediated intercellular signaling pathway ...
... through PD.

S1 [013] One-sentence summary Plant-specific coatomer protein functions as a negative regulator of callose accumulation by regulating the translocation of sphingolipid enzymes.

One-sentence summary Plant-specific coatomer protein functions ...
... as a negative regulator ...
... of callose accumulation ...
... by regulating the translocation ...
... of sphingolipid enzymes.

S2 [014] Introduction

S2 [015] One of the crucial components in the plant cell is callose, a polysaccharide in the form of β-1,3 glucan located at the cell walls.

One ...
... of the crucial components ...
... in the plant cell is callose, ...
... a polysaccharide ...
... in the form ...
... of β-1,3 glucan located ...
... at the cell walls.

S2 [016] Callose plays a vital role in controlling the symplasmic permeability of plasmodesmata (PD) and regulates the cell-to-cell movement of signaling molecules.

Callose plays a vital role ...
... in controlling the symplasmic permeability ...
... of plasmodesmata ...
... (PD) ...
... and regulates the cell-to-cell movement ...
... of signaling molecules.

S2 [017] The callose deposition at the neck region of PD controls the symplasmic continuity.

The callose deposition ...
... at the neck region ...
... of PD controls the symplasmic continuity.

S2 [018] Callose is mainly synthesized by callose synthases/glucan synthase-like(s) (CalSs/GSLs) and antagonistically degraded by β-1,3-glucanases as callose degradation enzymes (BGs) (Verma and Hong, 2001; Jacobs et al., 2003; Levy et al., 2007; Barratt et al., 2011; Lee and Lu, 2011; Vaten et al., 2011; De Storme and Geelen, 2014; Iswanto and Kim, 2017; Gaudioso-Pedraza et al., 2018; Wu et al., 2018).

Callose is mainly synthesized ...
... by callose synthases/glucan synthase-like(s) ...
... (CalSs/GSLs) ...
... and antagonistically degraded ...
... by β-1,3-glucanases ...
... as callose degradation enzymes ...
... (BGs) ...
... (Verma ...
... and Hong, 2001; ...
... Jacobs et al., 2003; ...
... Levy et al., 2007; ...
... Barratt et al., 2011; ...
... Lee ...
... and Lu, 2011; ...
... Vaten et al., 2011; ...
... De Storme ...
... and Geelen, 2014; ...

End of Sample Audit

This is a truncated Manuscript Microscope Sample Audit.

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