A Manuscript Microscope 'Sentence Audit' of:

Endosperm turgor pressure both promotes and restricts seed growth and size

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/10.1101/2021.03.22.436392v1

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Audit Date: 31/03/21 **Audit Identifier:** WZ5C45M23IT4I3Y **Code Version:** 3.6

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	6
Section: 2	Introduction	15
N/A	--- --- --- --- --- --- ---	0
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The Sentence Audit Of The Research Paper

Title **Endosperm turgor pressure both promotes and restricts seed growth and size**

S1 [001] Abstract

S1 [002] Organ size depends on complex biochemical and mechanical interactions between cells and tissues.

Organ size depends ...
... on complex biochemical ...
... and mechanical interactions ...
... between cells ...
... and tissues.

S1 [003] Here, we investigate the control of seed size, a key agronomic trait, by mechanical interactions between two compartments: the endosperm and the testa.

Here, ...
... we investigate the control ...
... of seed size, ...
... a key agronomic trait, ...
... by mechanical interactions ...
... between two compartments: ...
... the endosperm ...
... and the testa.

S1 [004] By combining experiments with computational modelling, we tested an incoherent mechanical feedforward loop hypothesis in which pressure-induced stresses play two antagonistic roles; directly driving seed growth, but indirectly inhibiting it through mechanosensitive stiffening of the seed coat.

By combining experiments ...
... with computational modelling, ...
... we tested an incoherent mechanical feedforward loop hypothesis ...
... in which pressure-induced stresses play two antagonistic roles; ...
... directly driving seed growth, ...
... but indirectly inhibiting it ...
... through mechanosensitive stiffening ...
... of the seed coat.

S1 [005] We show that our model can recapitulate wild type growth patterns and explain the small seed phenotype of the haiku2 mutant.

We show ...
... that our model can recapitulate wild type growth patterns ...
... and explain the small seed phenotype ...
... of the haiku2 mutant.

S1 [006] Our work further reveals that the developmental regulation of endosperm pressure is needed to prevent a precocious reduction of seed growth rate induced by force-dependent seed coat stiffening.

Our work further reveals ...
... that the developmental regulation ...
... of endosperm pressure is needed ...
... to prevent a precocious reduction ...
... of seed growth rate induced ...
... by force-dependent seed coat stiffening.

S2 [007] Introduction

S2 [008] How tissue growth arrest is achieved once an organ has reached a defined size is a key, yet unresolved, question in developmental Biology (1, 2).

How tissue growth arrest is achieved once an organ has reached a defined size is a key, ...
... yet unresolved, ...
... question ...
... in developmental Biology ...
... (1, 2)...
... .

S2 [009] In Drosophila, mechanical and biochemical signals have been proposed to act in concert to control growth and determine organ size in the wing imaginal disk (3, 4).

In Drosophila, ...
... mechanical ...
... and biochemical signals have been proposed ...
... to act ...
... in concert ...
... to control growth ...
... and determine organ size ...
... in the wing imaginal disk ...
... (3, 4)...
... .

S2 [010] In plants, mechanical signals can affect growth by modulating key processes such as cytoskeleton organization (5, 6), auxin distribution (7, 8), chromatin organization (9) and gene expression (10, 11).

In plants, ...
... mechanical signals can affect growth ...
... by modulating key processes ...
... such as cytoskeleton organization ...
... (5, 6)...
... , ...
... auxin distribution ...
... (7, 8)...
... , ...
... chromatin organization ...

... (9) ...
... and gene expression ...
... (10, 11)...
... .

S2 [011] However, it remains unclear whether mechanical signals are involved in organ size control in plants.

However, ...
... it remains unclear ...
... whether mechanical signals are involved ...
... in organ size control ...
... in plants.

S2 [012] Seed size is a key agronomic trait that influences seed composition, and viability (12).

Seed size is a key agronomic trait ...
... that influences seed composition, ...
... and viability ...
... (12).

S2 [013] Seed growth relies on interactions between two seed compartments: the endosperm and the testa (13).

Seed growth relies ...
... on interactions ...
... between two seed compartments: ...
... the endosperm ...
... and the testa ...
... (13).

S2 [014] During early post-fertilization development in Arabidopsis, the endosperm comprises a single poly-nucleate cell filling most of the internal compartment of the seed (Fig. 1A) (14).

During early post-fertilization development ...
... in Arabidopsis, ...
... the endosperm comprises a single poly-nucleate cell filling most of the internal compartment ...
... of the seed ...
... (Fig. 1A) ...
... (14).

S2 [015] Hydrostatic pressure (turgor) in the endosperm, resulting from osmolite accumulation, is thought to drive seed growth (15), while progressive reduction of endosperm turgor was proposed to contribute to seed growth arrest (15).

Hydrostatic pressure ...
... (turgor) ...
... in the endosperm, ...
... resulting ...
... from osmolite accumulation, ...
... is thought ...
... to drive seed growth ...
... (15), ...
... while progressive reduction ...

... of endosperm turgor was proposed ...
... to contribute ...
... to seed growth arrest ...
... (15).

S2 [016] However, turgor does not always correlate positively with growth as recently shown in meristematic cells (16).

However, ...
... turgor does not always correlate positively ...
... with growth ...
... as recently shown ...
... in meristematic cells ...
... (16).

S2 [017] The testa, a maternal tissue derived from the ovule chalaza and integuments (17), is thought to constrain seed growth.

The testa, ...
... a maternal tissue derived ...
... from the ovule chalaza ...
... and integuments ...
... (17), ...
... is thought ...
... to constrain seed growth.

S2 [018] During mid to late seed expansion, the adaxial epidermis of the outer-integument (ad-oi) appears to restrict growth by reinforcing its inward-facing cell wall (wall 3, the third periclinal wall counting from the outside, Fig. S1).

During mid ...
... to late seed expansion, ...
... the adaxial epidermis ...
... of the outer-integument ...
... (ad-oi) ...
... appears ...
... to restrict growth ...
... by reinforcing its inward-facing cell wall ...
... (wall 3, ...
... the third periclinal wall counting ...
... from the outside, ...
... Fig. S1).

S2 [019] This process could involve perception of tensile stresses induced in the testa by endosperm pressure.

This process could involve perception ...
... of tensile stresses induced ...
... in the testa ...
... by endosperm pressure.

End of Sample Audit

This is a truncated Manuscript Microscope Sample Audit.

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