Enabling alt text at scale with generative AI

Adding value beyond compliance: A case study from the *Science* family of journals

23 OCT 2026

Alt text is a challenge for most publishers

- Large volume of content + limited resource
- Scientific figures are often complex and highly technical
- Alt text guidelines for general content don’t always fit
- Author role vs. publisher role

Emerging solution: AI-generated alt text

Considerations:

Compliance vs. helpfulness

Workflow and author guidelines fit

Author review vs. staff review

Cost for compliance/resource allocation

Models:

Generation during peer review

Post-peer review generation

Back file



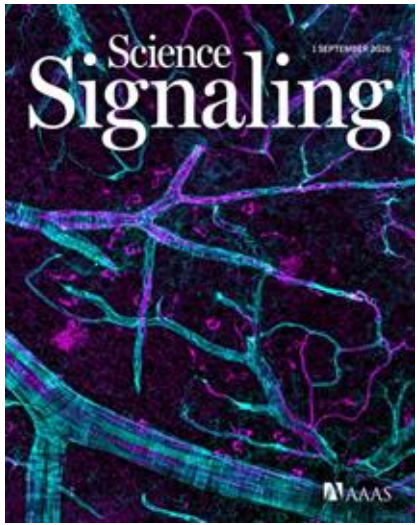
About the pilot

Pilot goals

- Assess helpfulness (not just accuracy)
- Develop and test an approach specific to scholarly publishing
- Share insights and improve alt text experience across industry

Pilot scope

- 2 journals
  - Science Signaling
  - Science Robotics
- 4 weeks
- About 135 figures





Workflow


Science stages content on Atypon
Wiley uses AI tool to generate alt text based on staged content
Wiley adds the alt text to the staged XML
Science editors review the staged content and edit for accuracy
Publication

Alt text generation

Length: Initially limited to 240 characters

Content: Chose to focus on identifying the types of image appearing in the figure

Starting off: We designed the prompt to reflect how a reader might describe a figure if they had 10 seconds to view it themselves; to describe the visuals of the figure broadly.

Where we're heading

Minimal viable alt-text → Optimized output

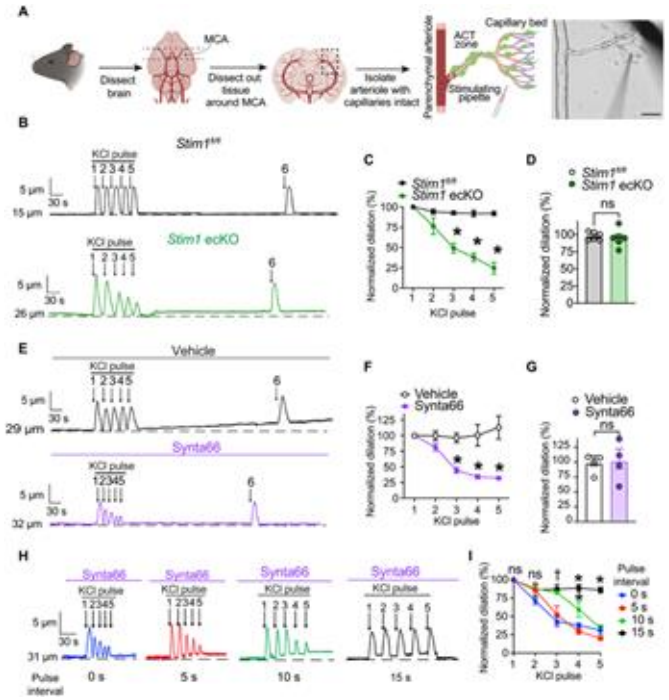


Fig. 3. STIM1 and ORAI1 channels sustain capillary-to-arteriole dilation.
(**A**) Ex vivo microvascular preparation of pressurized parenchymal arterioles with attached capillaries. The middle cerebral artery (MCA) territory was dissected, and arterioles with intact capillary beds were isolated for recording of diameter responses to focal capillary stimulation. Scale bar, 50 µm. (**B** and **C**) Representative traces (B) and summary data (C) for conducted dilation in upstream arterioles from *Stim1*$^{fl/fl}$ and *Stim1* ecKO mice in response to repetitive (five-pulse train) stimulation of capillaries with 10 mM KCl (n = 6 vessels per group from four animals per group; *P < 0.05 by two-way ANOVA). (**D**) Vasodilatory response evoked by a subsequent KCl stimulus (pulse 6), delivered 5 min after the train of KCl pulses [n = 6 vessels per group from four animals per group; ns; unpaired t test]. (**E** and **F**) Rundown of the vasodilator response during repetitive stimulation in the presence of the ORAI1 channel blocker Synta66 (10 µM) (n = 4 vessels per group from four animals per group; *P < 0.05 by two-way ANOVA). (**G**) Vasodilator response evoked by the last KCl

ALT TEXT

Multi-panel figure, panels A through I, combining a schematic dissection workflow with a bright-field micrograph, vessel-diameter trace recordings, line graphs of normalized values, and bar charts with individual data points.

Results and observations

Assessing the results

- Journal editors reviewed alt text for accuracy and completeness
- Volunteers from the Academy of Blind Scientists tested and provided feedback

Review factors

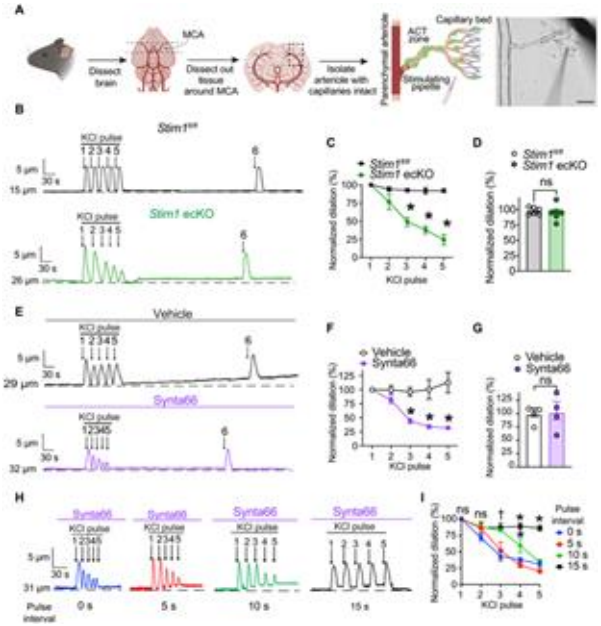
Length	What's the ideal length? Should it be longer to capture more detail, or shorter for usability?
Form	Is the alt text clean, concise, and understandable?
Consistency	Is it consistent between figures and articles?
Relation to caption	Does the alt text duplicate the caption or complement it?
Accuracy	Anything incorrect? Anything being left out?
Helpfulness	How useful is it in helping a user understand the figure?

Length

- Balance between including enough detail but keeping the text length manageable
  - Extremely long alt text can make navigation with a screen reader difficult
  - Length limit keeps the AI text concise, keeps it from filling in with unnecessary detail
- 240 characters was too short

Form

- Ensure descriptions map to panels, so that users can connect them back to caption



INITIAL ALT TEXT

Multi-panel figure, panels A through I, combining a schematic dissection workflow with a bright-field micrograph, vessel-diameter trace recordings, line graphs of normalized values, and bar charts with individual data points.

IMPROVED ALT TEXT

Figure with panels A through I. **Panel A combines** a schematic dissection workflow with a bright-field micrograph. **Panels B, E, and H show** vessel-diameter trace recordings. **Panels C and F show** line graphs of normalized values. **Panels D and G show** bar charts with individual data points.

Accuracy and helpfulness

- Accuracy is the baseline requirement. Helpfulness can be iteratively improved upon
- Don’t let perfect be the enemy of good
- Feedback from real users is invaluable

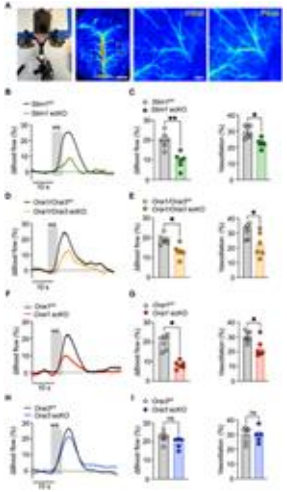
Strengths and limitations of AI-generated alt text

- **Accuracy**
  - Accurate for high-level descriptions, but can lack detail
- **Description vs. intention**
  - Accurately identifies the types of image present in the figure
  - Can’t capture intention. Sometimes lacks a clear connection between the figure and caption

Strengths and limitations of AI-generated alt text

Worked well for:

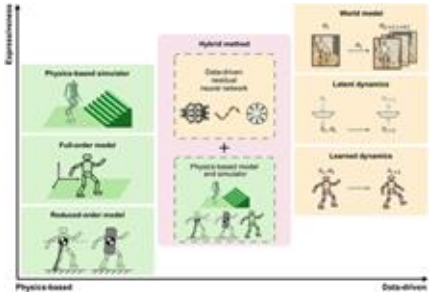
- Photographs
- Data charts
- Figures with separate, self-contained panels

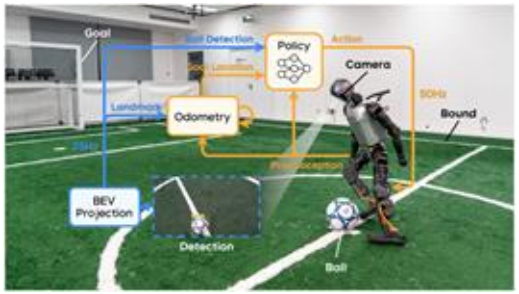




Didn’t work as well for:

- Conceptual diagrams
- Text-heavy figures
- Identifying the relationship between parts of an image





What’s next?

Continue experimenting and iterating

- Increase length limit
- Add a one-sentence summary at the start of each alt text connecting it to the caption
- More complex prompt approach, with differing instructions based on the type of figure

Shaping the future of accessibility together



I am blind, and I am an example of somebody who would highly, highly, highly benefit from having alt text in my journals. Thank you.