

Dram1 confers resistance to Salmonella infection

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.
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Manuscript Source: <https://www.biorxiv.org/content/10.1101/2021.03.21.436194v1>

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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.

[illegible]

Title **Dram1 confers resistance to Salmonella infection**

S1 [001] Abstract

S1 [002] Dram1 is a stress and infection inducible autophagy modulator that functions downstream of transcription factors p53 and NFκB.

Dram1 is a stress ...
... and infection inducible autophagy modulator ...
... that functions downstream ...
... of transcription factors p53 ...
... and NFκB.

S1 [003] Using a zebrafish embryo infection model, we have previously shown that Dram1 provides protection against the intracellular pathogen Mycobacterium marinum by promoting the p62-dependent xenophagy of bacteria that have escaped into the cytosol.

Using a zebrafish embryo infection model, ...
... we have previously shown ...
... that Dram1 provides protection ...
... against the intracellular pathogen Mycobacterium marinum ...
... by promoting the p62-dependent xenophagy ...
... of bacteria ...
... that have escaped ...
... into the cytosol.

S1 [004] However, the possible interplay between Dram1 and other anti-bacterial autophagic mechanisms remains unknown.

However, ...
... the possible interplay ...
... between Dram1 ...
... and other anti-bacterial autophagic mechanisms remains unknown.

S1 [005] Recently, LC3-associated phagocytosis (LAP) has emerged as an important host defense mechanism that requires components of the autophagy machinery and targets bacteria directly in phagosomes.

Recently, ...
... LC3-associated phagocytosis ...
... (LAP) ...
... has emerged ...
... as an important host defense mechanism ...
... that requires components ...
... of the autophagy machinery ...
... and targets bacteria directly ...
... in phagosomes.

S1 [006] Our previous work established LAP as the main autophagic mechanism by which macrophages restrict growth of Salmonella Typhimurium in a systemically infected zebrafish host.

Our previous work established LAP ...
... as the main autophagic mechanism ...
... by which macrophages restrict growth ...
... of Salmonella Typhimurium ...
... in a systemically infected zebrafish host.

S1 [007] We therefore employed this infection model to investigate the possible role of Dram1 in LAP.

We therefore employed this infection model ...
... to investigate the possible role ...
... of Dram1 ...
... in LAP.

S1 [008] Morpholino knockdown or CRISPR/Cas9-mediated mutation of Dram1 led to reduced host survival and increased bacterial burden during S. Typhimurium infections.

Morpholino knockdown ...
... or CRISPR/Cas9-mediated mutation ...
... of Dram1 led ...
... to reduced host survival ...
... and increased bacterial burden ...
... during S. Typhimurium infections.

S1 [009] In contrast, overexpression of dram1 by mRNA injection curtailed Salmonella replication and reduced mortality of the infected host.

In contrast, ...
... overexpression ...
... of dram1 ...
... by mRNA injection curtailed Salmonella replication ...
... and reduced mortality ...
... of the infected host.

S1 [010] During the early response to infection, GFP-Lc3 levels in transgenic zebrafish larvae correlated with the dram1 expression level, showing over two-fold reduction of GFP-Lc3-Salmonella association in dram1 knockdown or mutant embryos and an approximately 30% increase by dram1 overexpression.

During the early response ...
... to infection, ...
... GFP-Lc3 levels ...
... in transgenic zebrafish larvae correlated ...
... with the dram1 expression level, ...
... showing ...
... over two-fold reduction ...
... of GFP-Lc3-Salmonella association ...
... in dram1 knockdown ...
... or mutant embryos ...
... and an approximately 30% increase ...

... by dram1 overexpression.

S1 [011] Since LAP is known to require the activity of the phagosomal NADPH oxidase, we used a Salmonella biosensor strain to detect bacterial exposure to reactive oxygen species (ROS) and found that the ROS response was largely abolished in the absence of dram1.

Since LAP is known ...
... to require the activity ...
... of the phagosomal NADPH oxidase, ...
... we used a Salmonella biosensor strain ...
... to detect bacterial exposure ...
... to reactive oxygen species ...
... (ROS) ...
... and found ...
... that the ROS response was largely abolished ...
... in the absence ...
... of dram1.

S1 [012] Together, these results demonstrate the host protective role of Dram1 during S. Typhimurium infection and suggest a functional link between Dram1 and the induction of LAP.

Together, ...
... these results demonstrate the host protective role ...
... of Dram1 ...
... during S. Typhimurium infection ...
... and suggest a functional link ...
... between Dram1 ...
... and the induction ...
... of LAP.

S2 [013] Introduction

S2 [014] Autophagy has long been known as a fundamental housekeeping process wherein dysfunctional cellular components are captured inside double membrane vesicles that fuse with lysosomes to degrade and recycle the contents (Levine and Klionsky, 2004; Mizushima, 2007).

Autophagy has long been known ...
... as a fundamental housekeeping process wherein dysfunctional cellular components are captured ...
... inside double membrane vesicles ...
... that fuse ...
... with lysosomes ...
... to degrade ...
... and recycle the contents ...
... (Levine ...
... and Klionsky, 2004; ...
... Mizushima, 2007).

S2 [015] More recently, autophagy has also become recognized as an integral part of the immune system, functioning not only as a direct anti-microbial mechanism but also contributing to regulation of the immune response (Deretic et al., 2013).

More recently, ...
... autophagy has also become recognized ...
... as an integral part ...
... of the immune system, ...
... functioning not ...
... only as a direct anti-microbial mechanism ...
... but also contributing ...
... to regulation ...
... of the immune response ...
... (Deretic et al., 2013).

S2 [016] Autophagy can function as a non-specific bulk process or as a selective mechanism mediated by receptors that recognize molecular degradation signals like ubiquitin (Boyle and Randow, 2013).

Autophagy can function ...
... as a non-specific bulk process ...
... or as a selective mechanism mediated ...
... by receptors ...
... that recognize molecular degradation signals ...
... like ubiquitin ...
... (Boyle ...
... and Randow, 2013).

S2 [017] The selective autophagy of invading microbes, referred to as xenophagy, is an innate immune effector mechanism targeting invading microbes either when present inside membrane-bound compartments or when they escape into the host cytosol (Huang and Brumell, 2014).

The selective autophagy ...
... of invading microbes, ...
... referred ...
... to as xenophagy, ...
... is an innate immune effector mechanism targeting invading microbes either ...
... when present ...
... inside membrane-bound compartments ...
... or ...
... when they escape ...
... into the host cytosol ...
... (Huang ...
... and Brumell, 2014).

S2 [018] A hallmark of all forms of autophagy is the conjugation of microtubule-associated protein 1 light chain 3 (MAP1LC3, hereafter LC3) with phosphatidylethanolamine on the autophagosomal double membrane structures (Mizushima et al., 2004).

A hallmark ...
... of all forms ...
... of autophagy is the conjugation ...
... of microtubule-associated protein 1 light chain 3 ...

End of Sample Audit

This is a truncated Manuscript Microscope Sample Audit.

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