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Getting Started in Research

Dr Sarah Ward
4 November 2026

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My own journey

Master's degree: Natural Sciences (Chemistry, Biochemistry and Maths)

PhD: Medicinal Chemistry and Structural Biology

NHS STP: Clinical Pharmaceutical Science

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Master's Degree

- Do cyanobacteria use prostaglandins as signalling molecules?

- Research in chemistry and biology labs





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PhD

- New small molecule treatment for neuroblastoma targeting the Aurora A/N-myc protein-protein interaction
- Split across chemistry and biology labs

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PhD





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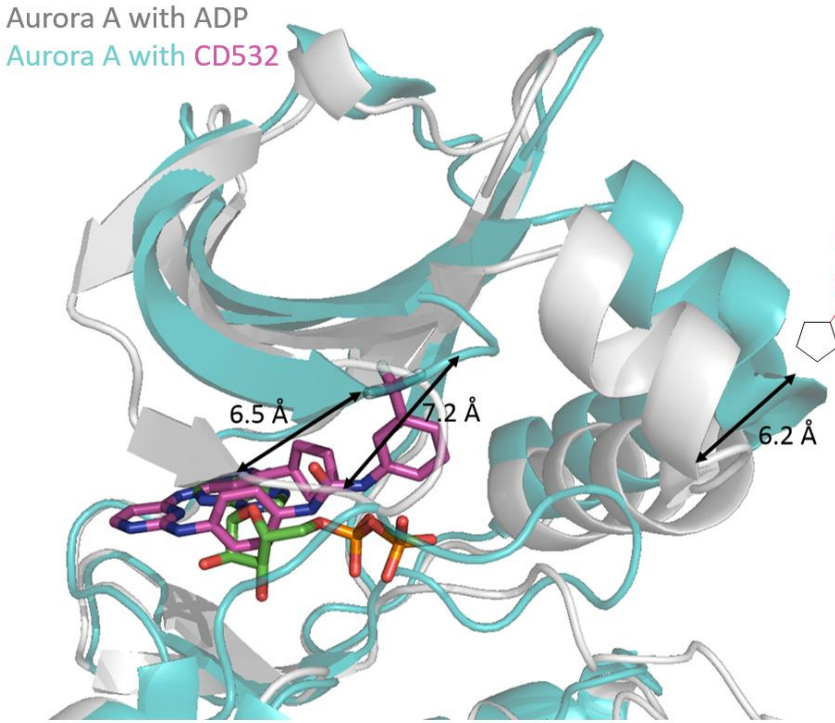
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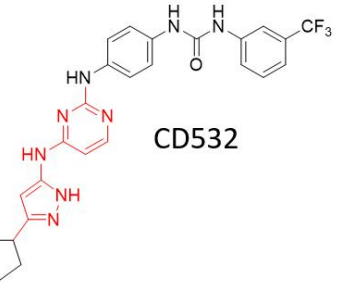
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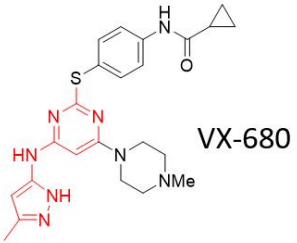
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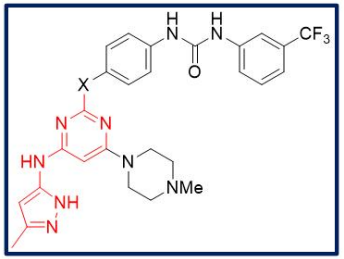
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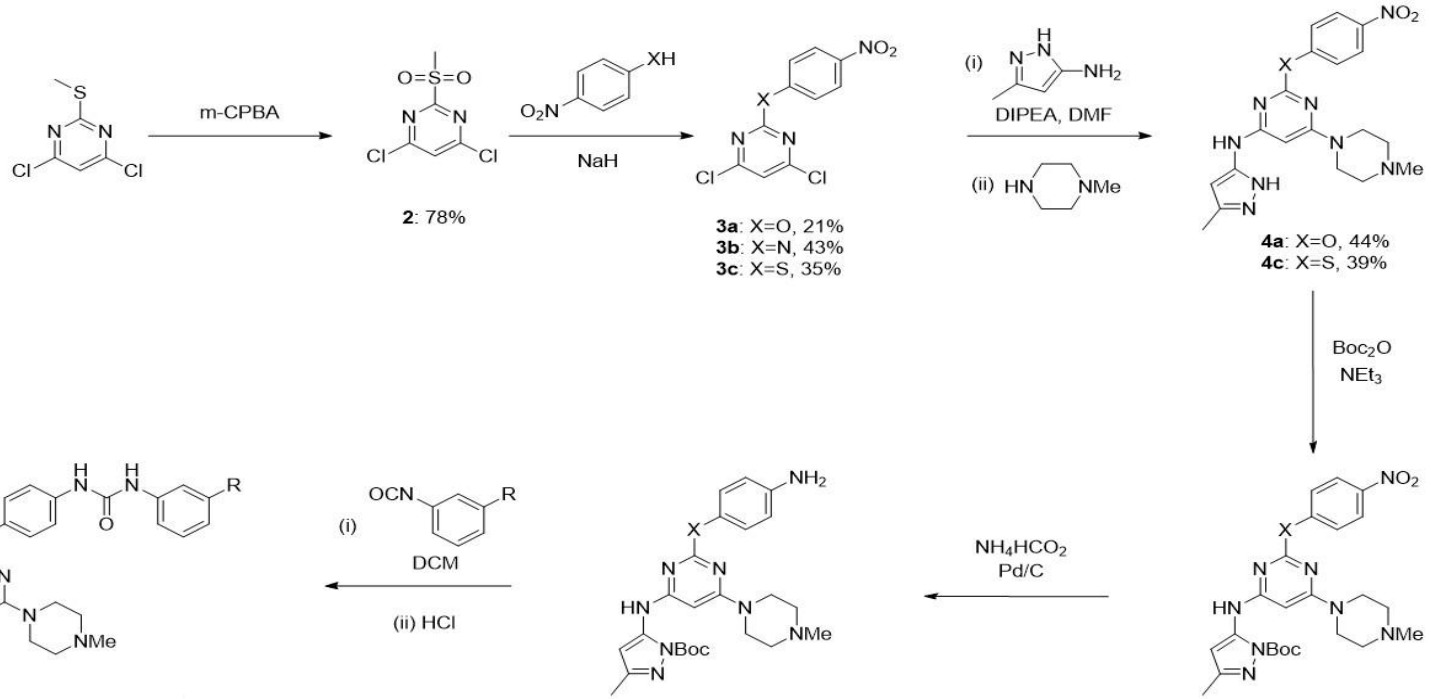
PDB: 5G1X and 4J8M

Richards, M. W. *et al. PNAS*, 2016.
Gustafson, W. C. *et al. Cancer Cell*, 2014, **26**, 414-427.

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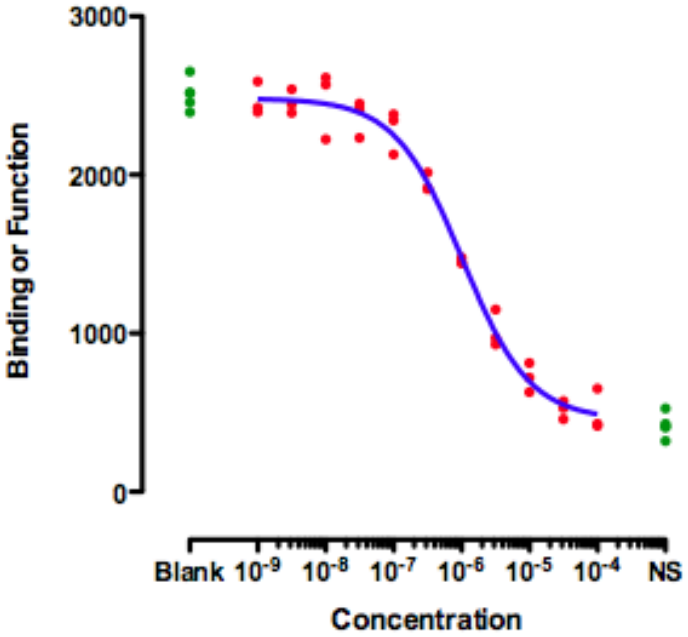
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m-CPBA
NaH
DIPEA, DMF
(i)
(ii)
2: 78%
3a: X=O, 21%
3b: X=N, 43%
3c: X=S, 35%
4a: X=O, 44%
4c: X=S, 39%
Boc2O
NEt3
NH4HCO2
Pd/C
DCM
(ii) HCl

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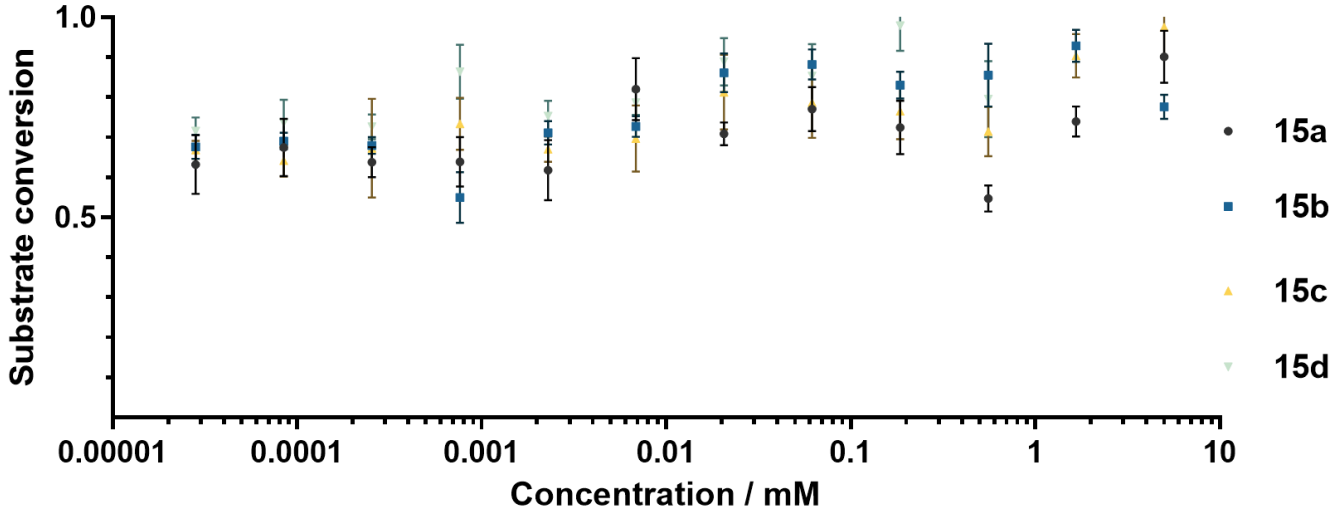
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1.0
0.5
Substrate conversion
0.00001
0.0001
0.001
0.01
0.1
1
10
Concentration / mM
15a
15b
15c
15d

STP

Contamination Control in Cleanrooms

Sarah Ward[1, 2], Maloni Talbot[1], Hala Shokr[2]

1. Wirral University Teaching Hospital
2. University of Manchester

1. Introduction

Contamination control is critical in maintaining assurance of product sterility

Achieving efficient control of the environment within budget and time pressures in increasingly busy NHS aseptic units is crucial

Routine environmental monitoring provides an overview of performance and can be monitored over time

This work analysed the efficacy of contamination control in our aseptic unit over a six-year period from January 2017-December 2022 using environmental monitoring results

This project aimed to determine:

- The impact of an ageing unit on contamination control over time
- The importance of seasonal variation on the cleanroom environment and contamination[1]
- The impact of increasing demand for aseptically-prepared products in recent years on cleanroom contamination, and expected future increases in demand[2]
- The value of routine grade B environmental monitoring in identifying and improving contamination control

2. Control over time

The total number of Grade A plates (settle and finger dabs) sampled and the number of out of specification (OOS) results were assessed over a six-year period from January 2017-December 2022

4. Increasing workload

The effect of workload on contamination control was investigated, using production figures and grade A OOS rates across the same six-year period

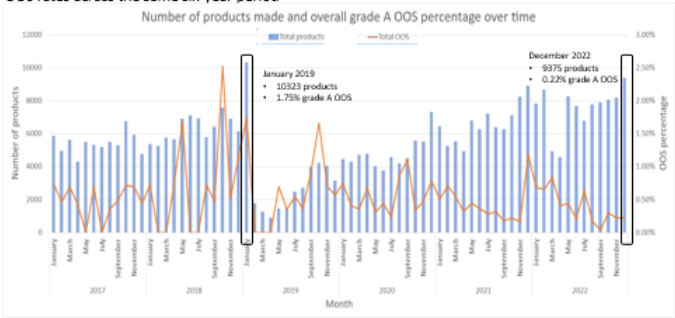


Fig. 2: Total number of products made each month in the ASU (blue bars) compared with the overall number of grade A OOS results as a percentage of all grade A plates (orange line), including settle plates and finger dabs

A gradual, steady increase in workload does not appear to contribute to more cleanroom contamination

A sudden increase in workload may put additional pressure on control measures

The two months with highest workload (highlighted above) had varied OOS rates. A gradual increase in workload since 2020 has not been accompanied with increasing OOS rate

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Why it might have been easier for me

Really structured journey	Straight through academic route	MSc and PhD ideas from my supervisors	Used skills I already had
Dedicated research labs and equipment	Full time research	Milestones and deadlines on the way	Time and funding for conferences

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Why it's still possible

Really structured journey	Straight through academic route	Ideas from things I face in work	Used skills I already had
Dedicated research labs and equipment	Full time research	Milestones and deadlines on the way	Time and funding for conferences

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Why it's still possible

Really structured journey	Part of the MSc PTQA or STP	Ideas from things I face in work	Used skills I already had
Dedicated research labs and equipment	Full time research	Milestones and deadlines on the way	Time and funding for conferences

Why it's still possible

Really structured journey	Part of the MSc PTQA or STP	Ideas from things I face in work	Used skills I already had
Working in aseptic unit every day	Full time research	Milestones and deadlines on the way	Time and funding for conferences

Why it's still possible

Really structured journey	Part of the MSc PTQA or STP	Ideas from things I face in work	Used skills I already had
Working in aseptic unit every day	Already doing the job	Milestones and deadlines on the way	Time and funding for conferences

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Why it's still possible

Really structured journey	Part of the MSc PTQA or STP	Ideas from things I face in work	Used skills I already had
Working in aseptic unit every day	Already doing the job	Audit/conference deadline?	Time and funding for conferences

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Why it's still possible

Really structured journey	Part of the MSc PTQA or STP	Ideas from things I face in work	Used skills I already had
Working in aseptic unit every day	Already doing the job	Audit/conference deadline?	Communicate online?

Since STP

- MSc Project supervisor
  - Reducing number of manipulations during processing
  - STP student training experience
  - Cytotoxic residue testing and impact of cleaning processes
  - AI in QC plate reading
  - Perceptions of leadership training in technical services
  - Introducing a compounder for PN manufacture
  - Team training to improve communication between technical and clinical teams

Since STP Implementing QT9, a new electronic quality management system at Arrowe Park Hospital

Sarah Ward
Aseptic Services, Wirral University Teaching Hospital

1. Introduction

- QT9, an electronic quality management system (eQMS) was introduced at Arrowe Park in August 2023
- Previous paper-based systems were fragmented, using a patchwork of different programs
- QT9 is used as a mostly off-the-shelf, web-based eQMS with limited customisation[1]
- Currently using QT9 for change controls, deviations, CAPA, all documentation and some training

This project aimed to:

- Determine whether QT9 would meet our User Requirement Specification (URS) for an eQMS
- Plan a phased introduction and validation of QT9 if it meets the URS
- Familiarise all staff with a new eQMS

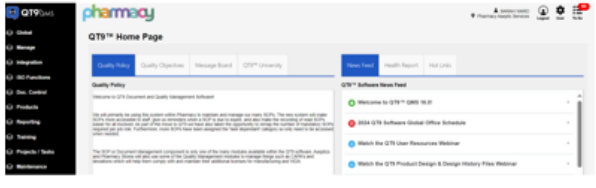


Figure 1: QT9 home page

2. URS and initial planning

Requirements:

- An eQMS capable of managing audit, change control, deviation, and non-conformances
- Document management features for wider pharmacy department
- ISO 9001[2] and Good Automated Manufacturing Practice (GAMP)[3] compliant
- Further detailed requirements for each element of the quality system

Initial review found our current paper-based systems did not meet all features in the URS.

Planning:

- Design (DQ) and installation qualification (IQ) completed before introduction of any element
- Operation (OQ) and performance qualification (PQ) completed for individual elements
- E.g. change control OQ and PQ completed before audit OQ commenced in planned phases (Table 1)

Table 1: Planned phased introduction of QT9

Implementation phase	QMS elements
Phase 1	Documentation (SOPs) Deviation Maintenance Change control
Phase 2	Training Risk assessment Documentation (worksheets, specifications)
Phase 3	Audit Validation

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Since STP

Does more frequent, faster collection of student feedback on teaching improve feedback engagement and quality?

Sarah Ward, Sue Renn, Ruth Barnes
School of Health Sciences, University of Manchester

MANCHESTER 1824
The University of Manchester

1. Introduction

- Student feedback can give valuable insight to inform improvements to teaching and programme delivery[1]
- Lack of engagement from students is a recognised problem[2]
- Course changes might be made based on student feedback from a minority of students[3]

- We teach two MSc programmes (MSc Clinical Science and MSc Pharmaceutical Technology and Quality Assurance)
- Both programmes have moved from in-person teaching to a blended model since 2019

- Feedback was previously **collected at the end of a module** and yielded **nonspecific** feedback from a **small proportion of students** and a **lack of detail** to inform course changes
- We introduced online feedback collection at the end of every taught session

2. Methods

- We reviewed the impact of different methods of feedback used in the first teaching module
- This module is compulsory and shared across both courses
- Feedback and teaching collection methods were:

Table 2: Feedback and teaching methods used each academic year

Year	Teaching style	Feedback method
2017-2018	In-person	Paper form at end of teaching week
2018-2019	In-person	Paper form at end of teaching week
2019-2020	In-person	Paper form at end of teaching week
2020-2021	Online	Qualtrics – distributed after teaching week
2021-2022	Online	Qualtrics – distributed after teaching week
2022-2023	Blended	Qualtrics – distributed at end of each day
2023-2024	Blended	Qualtrics – distributed at end of each day
2024-2025	Blended	Slido – collected after each session
2025-2026	Blended	Slido – collected after each session

- For each academic year we assessed:
  a) The number of feedback responses against student numbers (response rate)
  b) Total number of comments across the whole module
  c) Number of lectures/workshops without any specific related feedback comments
  d) Qualitative review of feedback comments and whether they could lead to course improvements
- Sessional feedback via Slido was collected by:

Display QR code on screen or link in Zoom chat → Students rate the session 1-10 → Free text response for any specific comments

3. Results

a) Response rate

- **Large variation** across years, even across separate years using the same method (range 3-81%)

b) Total comments

- Significant increase in total comments from 2024, when feedback started to be collected after every teaching session
- There was no significant change when moving from weekly to daily feedback collection

c) Lectures/workshops without specific comments

- Feedback comments about specific teaching sessions help inform future changes
- In 2017-2018 only general comments were collected from students and no students referenced particular teaching sessions in free text responses
- Sessional feedback collected via Slido QR codes was the only method where comments could be linked to a specific lecture/workshop and no sessions were left without any specific feedback

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Finding your own opportunities

- PTQA/STP MSc project
- Use what you're already doing in work
- If you don't like presenting/writing:
  - Start small
  - Try a poster
  - Try virtual presentations

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Finding an idea

- Have you asked a question in work and no one could find the answer?
- Are you trying a new way of working?
- Did you read a paper or see a poster and want to take the idea further?

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It doesn’t have to change the world

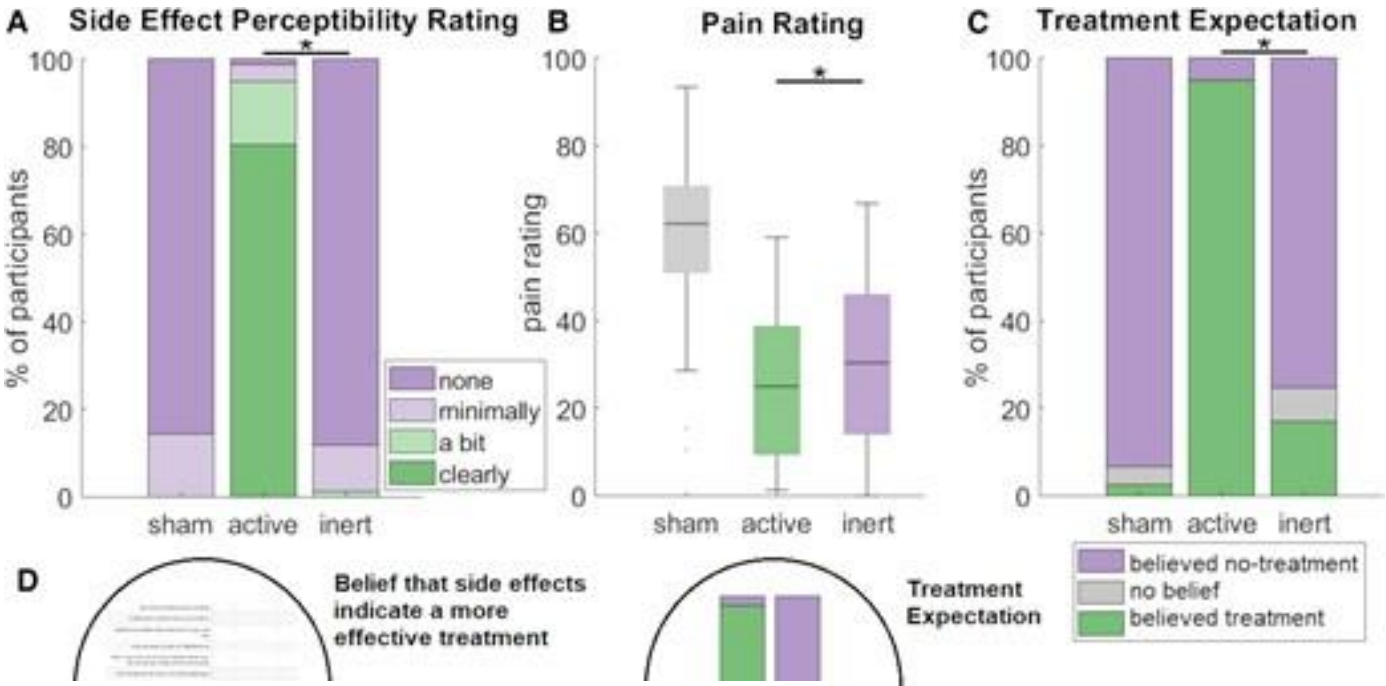
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Moose crash test dummy: master's thesis

Gens, Magnus



JOURNAL ARTICLE

How side effects can improve treatment efficacy: a randomized trial

FREE

Lieven A Schenk ✉, Tahmine Fadai, Christian Büchel

Brain, Volume 147, Issue 8, August 2024, Pages 2643–2651,

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Celebrate what you're already doing

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Keep the momentum

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Final thought
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