

December 2023

## Editorial - SURE Journal vol 5

Anne M. Friel

*Technological University of the Shannon: Midlands Midwest, anne.friel@tus.ie*

Follow this and additional works at: [https://arrow.tudublin.ie/sure\\_j](https://arrow.tudublin.ie/sure_j)



Part of the [Life Sciences Commons](#), [Medicine and Health Sciences Commons](#), and the [Physical Sciences and Mathematics Commons](#)

### Recommended Citation

Friel, Anne M. (2023) "Editorial - SURE Journal vol 5," *SURE Journal: Science Undergraduate Research Experience Journal*: Vol. 5: Iss. 1, Article 1.

doi:<https://doi.org/10.21427/vx35-z285>

Available at: [https://arrow.tudublin.ie/sure\\_j/vol5/iss1/1](https://arrow.tudublin.ie/sure_j/vol5/iss1/1)

This Article is brought to you for free and open access by the Current Publications at ARROW@TU Dublin. It has been accepted for inclusion in SURE Journal: Science Undergraduate Research Experience Journal by an authorized editor of ARROW@TU Dublin. For more information, please contact [arrow.admin@tudublin.ie](mailto:arrow.admin@tudublin.ie), [aisling.coyne@tudublin.ie](mailto:aisling.coyne@tudublin.ie), [vera.kilshaw@tudublin.ie](mailto:vera.kilshaw@tudublin.ie).



This work is licensed under a [Creative Commons Attribution-NonCommercial-Share Alike 4.0 International License](#).

## Editorial – SURE Journal, vol 5



### Higher Education Institutes in Ireland publish their latest STEM undergraduate research.

This current volume of the SURE Journal publishes the latest in undergraduate research (lab and desk based) from Higher Education Institutes in Ireland.

The published work ranges from the use of natural products as potential anticancer and antifungal therapeutics, the impact of dietary fibre intake on mood and bowel function, miRNA expression profiling in obesity, stem cell based therapies in the treatment of Multiple Sclerosis (MS), and

the development of methodology for rapid prototyping of microfluidic devices for lipid membrane self-assembly and synthesis.

Products of the Honeybee (*Apis mellifera*) have been used medicinally for many years. Donnellan and Friel discuss the biological properties of melittin, a peptide component of bee venom, and its potential therapeutic uses as an anticancer agent. They discuss challenges in the formulation of a natural product such as melittin and analyse current trends in its delivery development for therapy.

Peacock and O'Connor focus on the potential medicinal use of plant metabolites and bacteria. The authors present data on previously unreported antifungal activity of *Osmanthus delavayi* (a member of the olive family Oleaceae).

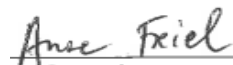
The challenges in developing novel therapeutics are further discussed by Amarculesei *et al.* In this work they highlight recent trends in adipose derived stem cell (ADSC) research as a treatment for MS. The feasibility and safety of ADSC-based therapies are presented and the authors stress the need for the regulatory framework in Ireland to develop guidelines to regulate the use of stem cell therapies for MS treatment.

Adipose derived stem cells may be used as models of obesity, obesity-related inflammation and diabetes. miRNA dysregulation is linked to obesity development and associated disorders. Maher *et al.*, have identified miRNAs (expressed in ADSCs) that are dysregulated in obese and diabetic patients. Additionally, they have identified a novel miRNA that is dysregulated. Their findings show potential for the development of miRNA-based personalised therapeutics in obesity and diabetes.

Dietary fibre intake and its impact on bowel function and mood in an Irish population were investigated in a cross-sectional study by Mulligan *et al.* A positive association was observed between dietary fibre intake and mood, and those who had better bowel function scores had a better mood. The authors suggest raising awareness within academic communities on the importance of dietary fibre intake for bowel health and mental health.

Finally, Hardwick and O'Reilly report on their development of a microfluidic chip for use in liposome synthesis protocols. The authors expanded their research to the use of low-cost materials in the design thereby increasing accessibility of R & D activity.

Research presented in this volume includes work from the Technological University of the Shannon: Athlone campus, Atlantic Technological University, Munster Technological University and Technological University Dublin. I welcome continued submission of articles from our National undergraduate research community and look forward to having our International colleagues' students submitting work in the next volume.



Editor in Chief, SURE Journal