

Enhancing exercise benefits in obesity by targeting HIF1 α

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Objectives: Exercise is well-established to be beneficial for obesity and T2D. This is in part, due to the regulation of hypoxia inducible factors (HIFs). We have created a novel mouse model which targets the beneficial effects of HIF in metabolism (HIF1 α -N813Q). We aim to explore the effects of exercise and high fat diet (HFD) feeding in our novel HIF1 α mouse model and hypothesise that mice with this mutation will experience some protection against adverse consequences of HFD, and experience *greater* benefits when given access to exercise.

Methods: Male HIF1 α -N813Q mutant mice and their wild-type (WT) littermates underwent a series of basal tests for assessment of metabolic status and muscle function: glucose tolerance test, fore-limb grip strength, insulin tolerance test and endurance testing. Mice were then challenged with HFD (Diet 6B; 45% digestible energy from lipids) and given access to a running wheel (locked for controls).

Results: Baseline data from metabolic tests did not exhibit any differences between genotypes in glucose and insulin tolerance, and baseline endurance or grip strength. Body weight gain and fat mass were significantly reduced in mutant mice given access to a wheel but not the other groups (mutant and control sedentary, control with wheel). N813Q-exercise mice had significantly enhanced grip strength ($p < 0.05$) and significantly increased exercise endurance after only 3 weeks which further increased by 6 weeks. The increase was significantly greater than in control-exercise mice – in which, the 3-week improvement in mutant-exercise mice was comparable to the improvement observed at 10 weeks in control-exercise mice.

Despite elevated triglyceride levels in sedentary WT mice, there was not much intramyocellular lipid. Interestingly, histological analysis of skeletal muscle showed greater *intramyocellular* lipid accumulation in sedentary N813Q mice in comparison to WT mice.

It is possible that the differential effects of exercise could be due to the increased *intramyocellular* lipid accumulation in mutant mice in contrast to the increased intermyocellular lipids observed in their WT counterparts.

Conclusions: Overall, the data show that our novel HIF1 α mice experience enhanced improvements in both muscle functionality and metabolism. This suggests that targeting this pathway is a potential mechanism to substantially augment the beneficial effects of exercise.

6th May 2024
Endocrine Society of Australia

Dear Sir / Madam

I am writing to express my interest in the ESA Australian Women in Endocrinology (AWE) Travel Award for the presentation of my research at the ENDO conference, 1-4 Jun 2024 in Boston.

Title of Abstract: Enhancing exercise benefits in obesity by targeting HIF1 α

At <3 years postdoc, presenting at ENDO 2024 will provide me with the golden opportunity to gain valuable feedback and insights from international experts in the field. I have an incredible opportunity to present my research as an oral presentation, which will allow me to engage in meaningful discussions with peers who share a similar passion for advancing knowledge in the field. Moreover, I am confident that my research outcomes will contribute significantly to the overarching goals of the conference.

I have attached my abstract for your review. I understand the rigorous selection process that abstracts undergo for this prestigious travel award. If accepted, I am committed to actively participating in any discussions, panels, or workshops that align with my research interests during the conference.

I will be arriving on the night of the 30th May 2024, giving myself one day to adjust to time zone differences, and will participate in ENDO 2024 from the 1st June. I will be leaving immediately following the conference close on the 4th June 2024.

This travel award would greatly assist me in broadening my scientific network, providing valuable international experience, and empowering me to make a significant contribution to the field of endocrinology. Thank you for considering my application. I am enthusiastic about the prospect of contributing to the success of ENDO 2024.

Kind regards



Dr. Josephine Yu

Postdoctoral Researcher

Centre for Diabetes, Obesity and Endocrinology Research
The Westmead Institute for Medical Research

JOSEPHINE YU

EDUCATION

PhD | UNSW Sydney, *Physiology and Pharmacology*
BSc (Honours I) | UNSW Sydney, *Pathology and Physiology*

March 2017 - October 2021
March 2012 - November 2016

EXPERIENCE

Postdoctoral Researcher, Westmead Institute of Medical Research, Australia
Laboratory Manager, Westmead Institute of Medical Research, Australia

Oct 2021- *present*

SELECT HONORS AND AWARDS

Best Oral Presentation Winner for SICEM 2024 2024
Recipient of the Best Oral Presentation award in the Diabetes, Obesity and Lipids (Basic) stream for the Seoul International Congress on Endocrinology and Metabolism.

Pincus-Taft Young Investigator Award 2023
Recipient of the prestigious Pincus-Taft Young Investigator award for outstanding oral presentation at the Australasian Diabetes Congress.

PUBLICATIONS

- **Yu J et al.** Complementary yet divergent effects of exercise and an exercise mimetic on microbiome in high-fat diet-induced obesity. *Physiol Genomics*. 2023
- Agoncillo MA*, **Yu J*** and Gunton JE. (**co-first author*). The Role of Vitamin D in Skeletal Muscle Repair and Regeneration in Animal Models and Humans: A Systematic Review. *Nutrients*. 2023
- **Yu J et al.** Vitamin D and Beta Cells in Type 1 Diabetes: A Systematic Review. *Int. J. Mol. Sci.* 2022
- **Yu J et al.** Concurrent betaine administration enhances exercise-induced improvements to glucose handling in obese mice. *Nutr Metab Cardiovasc Dis*. 2022
- **Yu J et al.** Exercise-induced benefits on glucose handling in a model of diet-induced obesity are reduced by concurrent nicotinamide mononucleotide. *Am J Physiol Endocrinol Metab*. 2021
- Montgomery MK *et al.* Regulation of mitochondrial metabolism in murine skeletal muscle by the medium-chain fatty acid receptor Gpr84. *FASEB J*. 2019
- Youngson NA *et al.* Impacts of obesity, maternal obesity and nicotinamide mononucleotide supplementation on sperm quality in mice. *Reproduction*. 2019

SELECT TALKS AND PRESENTATIONS

Invited Talks

- Enhancing exercise benefits in obesity by targeting HIF1 α . *Westmead Hub EMCR Seminar Series*.
- Enhancing exercise capacity and metabolism. *UTS BioSeminar Series*.
- Enhancing exercise capacity and metabolism: Targeting the HIF1 α -FIH interaction. *Westmead Research Hub Scientific Platforms Seminar Series*.

International Presentations

- **Yu J**, Cheung C and Gunton JE. Targeting HIF1 α enhances exercise benefits when challenged with a high fat diet. *The 12th Seoul International Congress of Endocrinology and Metabolism in conjunction with the 43rd Annual Scientific Meeting of the Korean Endocrine Society*. Seoul, Korea, 2024
- **Yu J** and Gunton JE. The Effects of High Fat Diet in a Novel HIF1 α Mouse Line. *International Congress for Obesity*. Melbourne, Australia, 2022

6th May 2024

Endocrine Society of Australia

Dear Sir / Madam

DR. JOSEPHINE YU: ESA Australian Women in Endocrinology (AWE) Travel Awards

I am writing this letter in strong support of Dr. Josephine Yu, a talented young scientist who has demonstrated exceptional dedication and innovation in her field of research. I have had the privilege of working closely with Josephine for the past 2 years, and I am delighted to provide this reference in anticipation of her presentation “Enhancing exercise benefits in obesity by targeting HIF1 α ” at the ENDO 2024 meeting.

Josephine possesses excellent communication skills, both in written and oral formats. Her extensive experience in presenting at national and international meetings during the course of her PhD and postdoctoral career has equipped her with the proficiency to effectively disseminate her research findings. Notably, she has been recognized with prestigious awards, including the 2023 Pincus-Taft Young Investigator Award and the Best Oral Presentation at SICEM 2024, which exemplifies her outstanding contributions to the scientific community.

With the help of this travel award, Josephine will be able to showcase her research at the ENDO 2024 meeting, where she has been accepted for an oral presentation. Her passion for research and commitment to advancing scientific knowledge, make her an ideal candidate. If you require any further information or have specific inquiries regarding Josephine or her research, please feel free to contact me.

Thank you for considering this recommendation. I am confident that Josephine will make a lasting impression at the international meeting, and I wholeheartedly support her participation.

Kind regards



Prof. Jenny E. Gunton

Centre Director

Centre for Diabetes, Obesity and Endocrinology Research

The Westmead Institute for Medical Research

Budget Justification for ESA AWE Travel Award

Expense	USD	AUD (or equivalent)
Economy Return Flight	-	\$1,810.76
Abstract Submission Fee	\$99.00	\$149.86
Registration Fee	\$489.00	\$740.22
Estimated Accommodation	\$1,799.15	\$2723.46
ESTA	\$21	\$31.79
	Total	\$5,456.09

All estimated AUD is based on the exchange rate on the 6th May 2024.

Flights: The cheapest return flight option available using Qantas Flight Watch.

Estimated Accommodation

Given the short duration of the conference, I will be arriving on the night of the 30th May 2024, giving myself one day to adjust to time zone differences, and will participate in ENDO 2024 from the 1st June.

I will be leaving immediately following the conference close on the 4th June 2024. Hence, I will be staying 5 nights in Boston at the cheapest hotel (as recommended by ENDO @ Omni Parker House for \$309 USD/night + room tax).

Note that this is an estimated amount (amount will be deducted at the end of this week).

All receipts attached.



Your Booking Reference

5H69A8



Important Information

- This is your E-Ticket Itinerary & Receipt. You must bring it with you to the airport for check-in, and it is recommended you retain a copy for your records.
- Each passenger travelling needs a printed copy of this document for immigration, customs, airport security checks and duty free purchases.
- Please familiarise yourself with the key Conditions of Carriage, Dangerous Goods guide and other information attached.
- For travel to the USA under the Visa Waiver Program you must obtain an electronic authorisation through the [Electronic System for Travel Authorisation website](#) at least 72 hours prior to departure.
- All passengers need a valid passport for international travel. Make sure you check your passport expiry date and ensure it meets the validity requirements for the destination you're planning to travel to.

Passenger Ticket Information				
Passenger Name	Frequent Flyer No.	Ticket No.	Issued	Ticket Total*
Miss Josephine Yu	QF1904650551 Frequent Flyer Bronze	081-2349858508	19 Feb 24	1,810.76
Ticket Total for all passengers*				1,810.76

*Amounts are displayed in Australian Dollar (AUD)

Your Itinerary					
Date	Flight Number	Departing	Arriving	Status	Flight Information
30 May 24	QF4111 Operated By AA0072 O	Sydney 9:15AM Terminal 1	Los Angeles 6:05AM 30 May 24 Terminal B	Economy Confirmed	Est journey Time: 13:50 Non-Stop Aircraft Type: Boeing 777
30 May 24	QF3172 Operated By AA1632 O	Los Angeles 8:05AM Terminal 0	Boston Logan 4:41PM 30 May 24 Terminal B	Economy Confirmed	Est journey Time: 05:36 Non-Stop Aircraft Type: Airbus A321 (Sharklets)
04 Jun 24	QF3172 Operated By AA1632 O	Boston Logan 5:45PM Terminal B	Los Angeles 9:09PM 04 Jun 24	Economy Confirmed	Est journey Time: 06:24 Non-Stop Aircraft Type: Airbus A321 (Sharklets)
04 Jun 24	QF4112 Operated By AA0073 O	Los Angeles 10:45PM Terminal 0	Sydney 7:05AM 06 Jun 24 Terminal 1	Economy Confirmed	Est journey Time: 15:20 Non-Stop Aircraft Type: Boeing 777

Your Receipt Details			
Additional Ticket Charges	Charges	GST	Total*
Total*	0.00		
Additional Charges			
Change Fee	0.00		
Total Amount Payable*	0.00	0.00	0.00

*Taxes/Fees/Carrier Charges may include non-refundable amounts

Tax Information	
GST does not apply to international travel. No tax invoice will be issued.	Issued by Qantas Airways

Flying With Us		
 <p>Before Check-in</p> <ul style="list-style-type: none"> • Ensure that each passenger carries a printed copy of this document when travelling. • Have necessary visas and the minimum passport validity required for the countries you are visiting. • Label your bags inside and out with your name, address and contact number at your destination. • Check Carry-on baggage and checked baggage allowances as restrictions apply. 	 <p>Getting Away On Time</p> <ul style="list-style-type: none"> • Ensure you are at the airport with enough time to complete necessary check-in, security screening and, for international flights, customs and immigration. • Familiarise yourself with the check-in and boarding times. Information for Qantas and QantasLink flights is in the Travel Information section attached. • Track real time flight information for Qantas, QantasLink and codeshare flights. 	 <p>Check-in</p> <ul style="list-style-type: none"> • Check-in at Qantas counters at the airport. Find out more at qantas.com/checkin



Josephine Yu

From: support@abstractsonline.com
Sent: Monday, 8 January 2024 11:20 AM
To: Josephine Yu
Subject: ENDO 2023 Abstract Submission Receipt

Endocrine Society
ENDO 2024

Abstract Fee Receipt
Your payment has been received.
Please save this receipt for your records.
Thank you for your submission.

Current Date: 1/7/2024
Name: Yu, Josephine
Submission Type: Abstract
Control/Invoice #: 2024-A-7680-ENDO
Title: Targeting HIF1 α ; Enhances Exercise Benefits in High Fat Diet-Fed Mice

Billing Information:
Josephine Yu
48 Mimosa St
Bexley, 2207
Payment Posted On: 1/7/2024 6:19:38 PM
Payment Type: Visa ##### 0952
Amount Due: \$90.00
Amount Paid: \$90.00
Amount Billed: \$90.00
Balance Due: \$0.00

Josephine Yu

From: ENDO 2024 Customer Service <email_confirm@confmail.experient-inc.com>
Sent: Wednesday, 6 March 2024 6:40 PM
To: Josephine Yu
Subject: ENDO 2024 Confirmation {END241:7969}



***** Please do not reply to this e-mail. It was sent from an automated system. *****

ENDO 2024 Confirmation

Thank you for registering for ENDO 2024 being held in Boston, MA, June 1-4, 2024. Below are your registration details. Please review and [contact us](#) with any changes.

For more information, please visit the [ENDO 2024](#) website.



Bring this confirmation to one of the onsite registration locations and scan the bar code at a designated counter to print your badge. A valid photo ID will be required. Badges will not be mailed. Please note that Endocrine Society retains a copy of all electronic registration and will honor official records only. Any alterations to this confirmation that may have been made after you have received will not be accepted and no refunds will be issued.

7969

You may be charged \$75 for multiple badge reprints onsite in Boston.



[UPDATE MY REGISTRATION](#)

Registration Updates

Click the UPDATE MY REGISTRATION link above to return to your registration to update your profile information.

Profile

Confirmation ID: 7969
Josephine Yu
The Westmead Institute for Medical Research
The Westmead Institute for Medical Research
176 Hawkesbury Road
Westmead, NSW 2145 Australia

Registration Details

[Josephine Yu](#)

Registration Type: Standard Registration, Early

Description	Item Total
Shuttle Bus Pass (Qty: 1)	\$0.00
Registration (Qty: 1)	\$489.00

Total Registration Fees:	\$489.00
Total Registration Paid:	(\$489.00)
Current Balance:	\$0.00

Housing Details

OMNI PARKER HOUSE

60 School St
Boston, MA 02108-4109

Phone: 617-227-8600
Fax: 617-830-9650

Status	Category	Occupancy
CONFIRM	RUN OF HOUSE	Adults: 1
Arrival	Departure	Guests in Room
30 May 2024	4 June 2024	Josephine Yu
Daily Rate	Room Tax	Deposit
\$309.00	16.45%	Credit Card Guarantee Josephine Yu *****0952
Resort Fee	Occupancy Tax	
\$0.00	\$0.00	Note: Taxes and fees are subject to change without notice

Estimated Reservation Charges		
\$1,799.15		
Hotel Cancellation Policy		
<p>All housing cancellations must be made in writing to ENDO@maritz.com on or before Thursday, May 9, 2024. Room Cancellations must occur 72 hours prior to arrival. Failure to cancel within the appropriate time frame will result in a one night's room and tax penalty. Failure to arrive on your scheduled arrival date may result in a cancelled reservation and cancellation fee equal to one night's room rate and tax. These charges will be processed by the designated hotels. The Endocrine Society is not responsible for failure to check-in on your scheduled day of arrival and cannot guarantee availability onsite.</p>		
Total Charges	Paid	Balance Due
\$0.00	\$0.00	\$0.00

Cancellation Policy

Registration Changes/Cancellations

To cancel your registration, you must email Maritz. Once processed, a registration cancellation will annul registration to ENDO 2024 as well as any related events, products, or services purchased in conjunction with that registration. If a registrant wishes to re-register for specific events hosted in conjunction with ENDO 2024, he/she/they may do so in accordance with the Annual Meeting policies. Products may also be purchased through the Society's online store and/or learning management system, if available.

Cancellations between Wednesday January 17-Wednesday, March 6, 2024

Cancellations requested between 8:01 am ET on January 17, 2024, and before 11:59 pm ET on March 6, 2024, are eligible for a full refund less a \$75 USD processing fee. Requests for changing from the Premium Package to the Standard Package will not be honored.

Cancellations between Thursday, March 7-Wednesday, May 1, 2024

Cancellations requested between 12:01 am ET on March 7, 2024, and 11:59 pm ET on May 1, 2024, are eligible for a 50% refund less a \$75 USD processing fee.

Cancellations after Wednesday, May 1, 2024

Except in the case of extenuating circumstances, the Society will not issue cancellation refunds for registrations or other ticketed events submitted after 11:59 pm ET on May 1, 2024. However, product purchases may be refunded after that date.

Registrants who provide a written notification to Maritz Global Event, ENDO 2024's official registration partner, for the following circumstances, may receive a full refund less a \$75 USD processing fee:

- A death in the family
- Personal injury or personal sudden illness
- Acts of God, war, pandemics, or government mandated travel restrictions



U.S. Customs and
Border Protection



AUTHORIZATION APPROVED

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Your travel authorization has been approved and you are authorized to travel to the United States under the Visa Waiver Program. This does not guarantee admission to the United States; a Customs and Border Protection (CBP) officer at a port of entry will have the final determination.

APPLICATION NUMBER	EXPIRATION DATE
29J652H26Z50253T	01/06/2026

PAYMENT RECEIPT

Payment Date:	May 6, 2024 1:38:41 PM
Payment Tracking Code:	27E72DNB
Payment Received:	\$21.00