ATA
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Arab Toxicologists Association

of the Society of Toxicology

Special Interest Group Reception

March 29, 2022

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Arab Toxicologists Association
of the Society of Toxicology
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Welcome to ATA-SOT Annual Reception 2022!

Arab Toxicologists Association
of the Society of Toxicology

Reception Agenda

- Introduce ATA officers
- ATA Mission
- Financial Support
  - Dr. Burhan Ghanayem Award
- Awards & Awardees
- Accomplishments
  - Scientific Activates
  - Newsletter
  - Next steps
  - Membership Benefits
- ATA Timeline & Website
  - Student and Post-Doctoral Representatives
- Opening Discussion with All Attendees
  - Hold-on for the Virtual Picture!
- Reception closing
  - Direct Contact information- Survey

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1. ATA officers

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ATA Officers 2021-2022

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President
Hanan Ghantous

Vice President
Burhan Ghanayem

Secretary
Nabila Mohamed

Councilor
Saif A. Alharthy

Councilor
Hadil Al Muhisen

Councilor
Iyden Mohammed

Vice President-Elect
Nabil Al-Humadi

Past President
Hasan Alghetaa

Treasurer
Amira Kamil Mohammed

Postdoc representative
Osama Abdullah

Graduate Representative
Saeed Alqahtani

Graduate Representative
Noor Aly

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ATA New Officers 2022-2023

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President
Nabil Al-Humadi

Vice President
Saif A. Alharthy

Vice President-Elect
Maha Almazroaa

Secretary / Treasurer
Amira Kamil Mohammed

Past President
Hanan Ghantous

Councilor
Hadil Almuhisen

Councilor
Iyden Mohammed

Postdoc representative
Osama Abdullah

Graduate Representative
Saeed Alqahtani

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New Committee Representatives

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Award Committee
Nabila Mohamed

Scientific Program Committee
Sahar Issa

Scientific Program Committee
Abeer Abdelwahab

Newsletter Committee
Esraah Alharris

2. ATA Mission

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Our Mission

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Establish a Special Interest Group of Toxicologists from the Arab World with a major goal to effectively communicate toxicological ideas and support its members to succeed and achieve **Excellence in Toxicology** in the United States and worldwide.

Address current toxicological issues that affect Arab nations and increase **Awareness** of the involvement of toxic substances in causing diseases.

Promote the development of **Marginalized Branches** of toxicology in Arabic nations.

Promote the establishment of regional toxicology societies and of a **Pan Arab Toxicologist Association** to be an umbrella for all toxicology associations in all Arab countries.

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Want big impact?

3. Financial Support

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- ATA needs financial support from members and industries Student and Post-Doctoral Representatives
  - To promote the ATA mission
  - To support ATA members on their achievements
- Industries and Members who support ATA financial will be acknowledged in all ATA events and on the ATA SOT website
- **ATA support form on the website**

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Special Thanks!
Burhan Ghanayem

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DR. BURHAN GHANAYEM Outstanding Graduate Research Award

This award recognizes and celebrates a graduate student's success in carrying out high-quality research in Toxicological Sciences.

$500 and a plaque

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4. Awards & Awardees.

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Graduate Student Best Abstract Award

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Ferass Sammoura
Florida International University
(FIU)

Ola Wassel
Purdue University
(PU)

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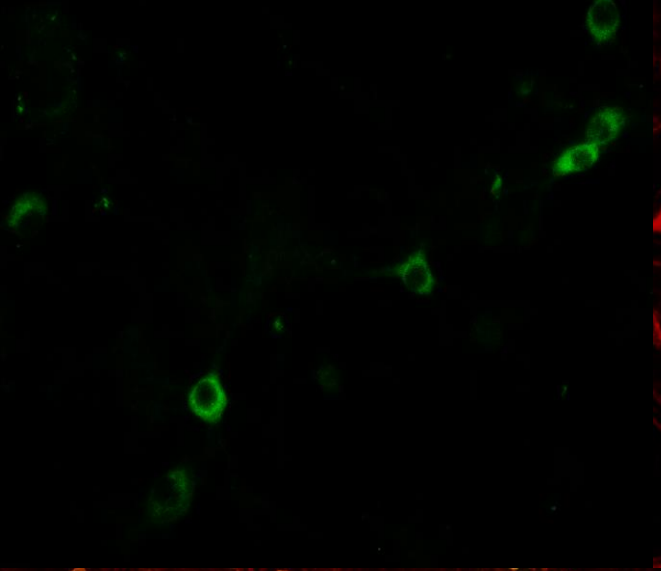
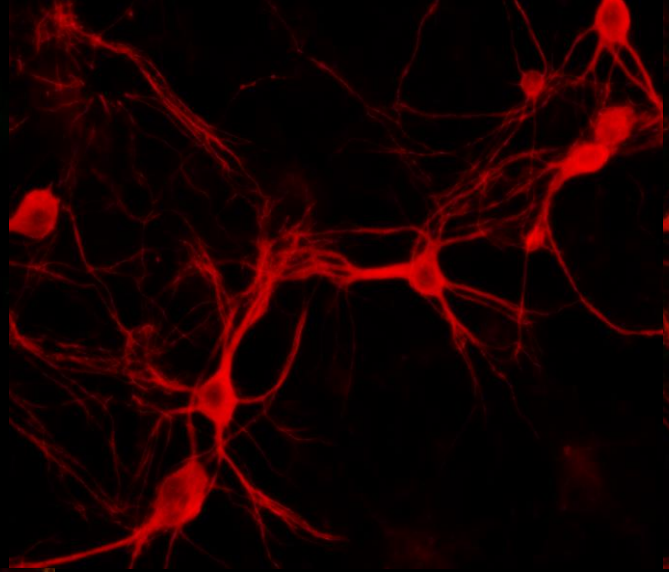
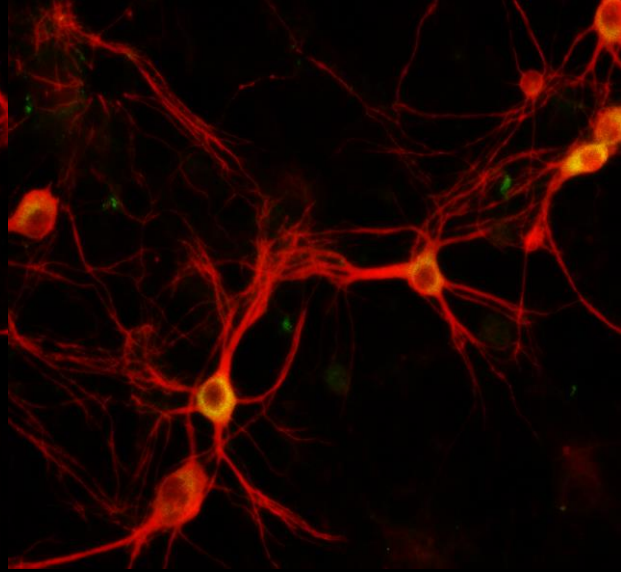
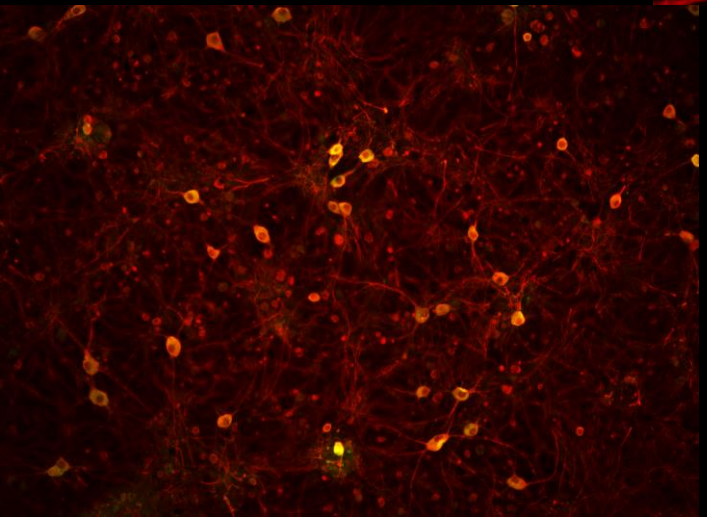





DDT and Its Metabolite DDE Increase Levels of Amyloid Precursor Protein and Secretion of Amyloid Beta

Ferass M. Sammoura, Arturo J. Barahona, Isha Mhatre-Winters, Jason R. Richardson

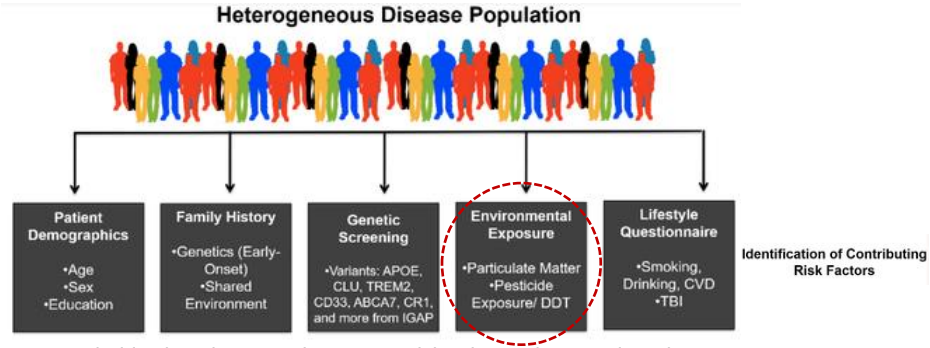
Environmental Health Sciences, Robert Stempel College of Public Health and Social Work, Florida International University, Miami FL

Alzheimer's Disease (AD)

- Most common neurodegenerative disease, accounts for the majority of cases of dementia
  - ~930,000 Americans living with Parkinson's (2nd most common)
- **AD is not normal aging**
- Decline in memory and cognitive function
- Sporadic AD (>95% of cases) has a very complex etiology with various contributing risk factors. Importantly, different environmental exposures have been linked to AD.

alzheimer's association

Alzheimer's Association Facts and Figures 2020



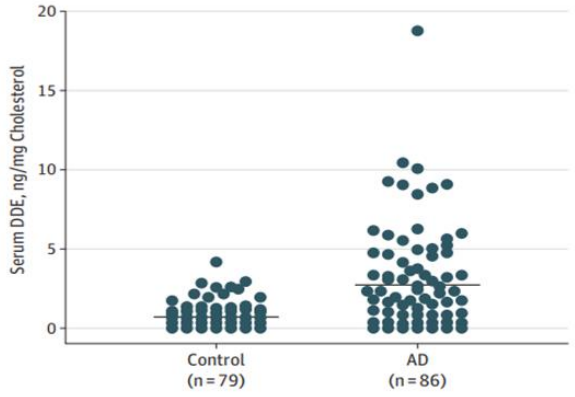
Aseel Eid, Isha Mhatre, and Jason R. Richardson; Pharmacol. & Ther.

Original Investigation

Elevated Serum Pesticide Levels and Risk for Alzheimer Disease

Jason R. Richardson, PhD; Ananya Roy, ScD; Stuart L. Shalat, ScD; Richard T. von Stein, PhD; Muhammad M. Hossain, PhD; Brian Buckley, PhD; Marla Gearing, PhD; Allan I. Levey, MD, PhD; Dwight C. German, PhD

Figure 1. Serum Levels of Dichlorodiphenyldichloroethylene (DDE)



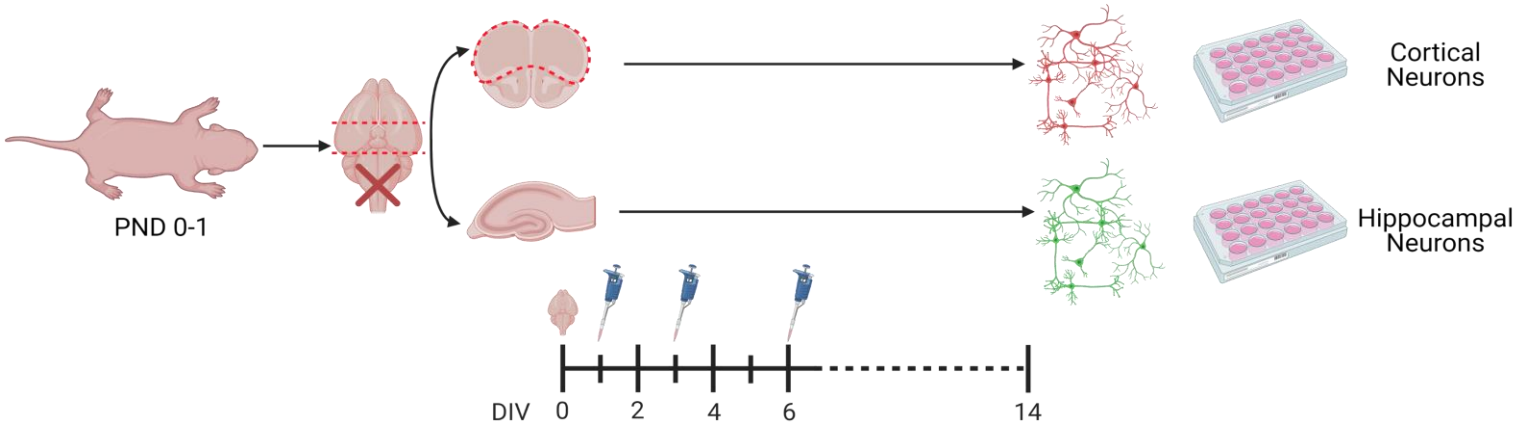
Serum levels of DDE are elevated in Alzheimer disease (AD). Data were pooled from University of Texas Southwestern Medical Center and Emory University. Levels of DDE are significantly higher in patients with AD (mean [SEM], 2.64 [0.35]) vs control participants (mean [SEM], 0.69 [0.10]; $P < .001$).

Table 2. Odds of AD per Tertile of DDE Distribution

Variable	Serum DDE Level, ng/mg Cholesterol/Tertile of Distribution			*P* Value[a]
	0.09-0.26	0.27-1.64	1.66-18.75	
Odds (95% CI) of AD diagnosis (n = 160)				
Adjusted for age, sex, race/ethnicity, and location	1 [Reference]	0.70 (0.19-2.55)	4.18 (2.54-5.82)	<.001
Adjusted for age, sex, race/ethnicity, location, and covariates[b]	1 [Reference]	0.54 (0.13-2.18)	3.40 (1.70-6.82)	<.001

Hypothesis and Experimental Design

Organochlorine pesticide DDT and its metabolite DDE modify the amyloid pathway and increase release of Aβ and severity of amyloid pathology.



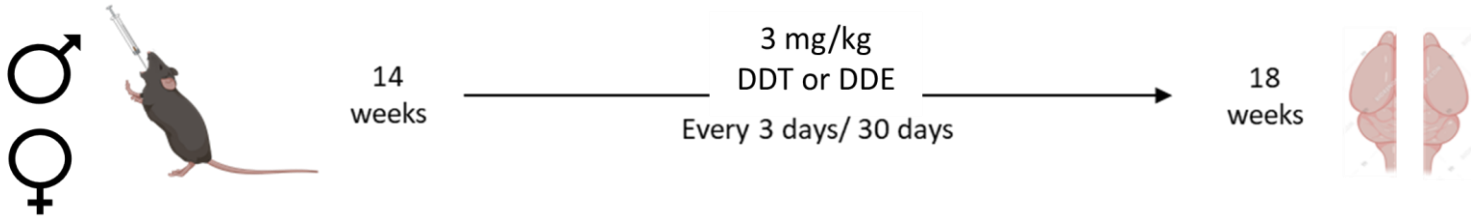
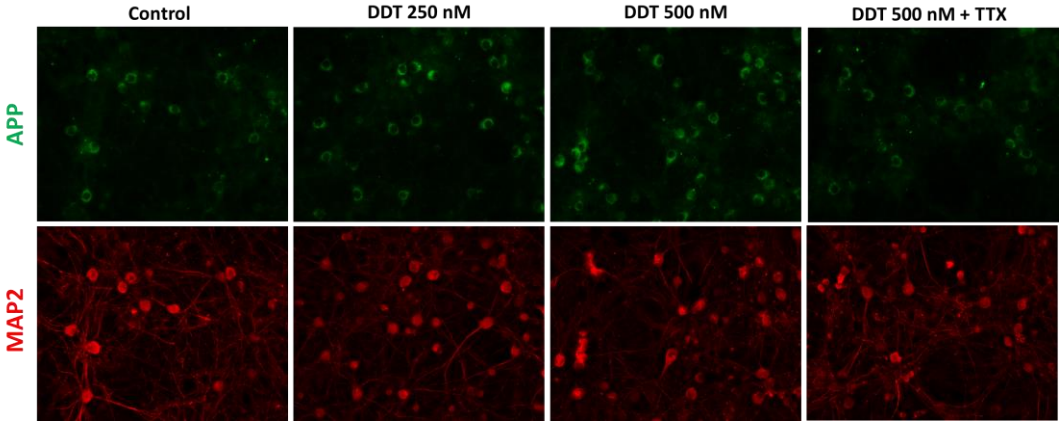
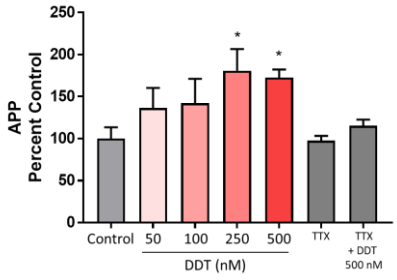
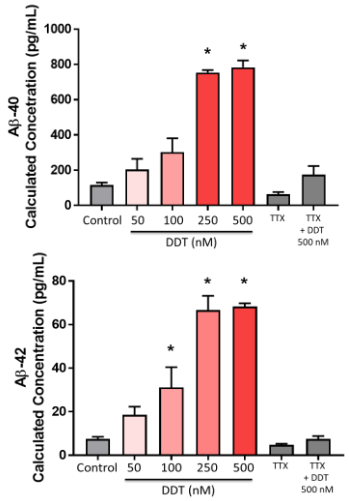
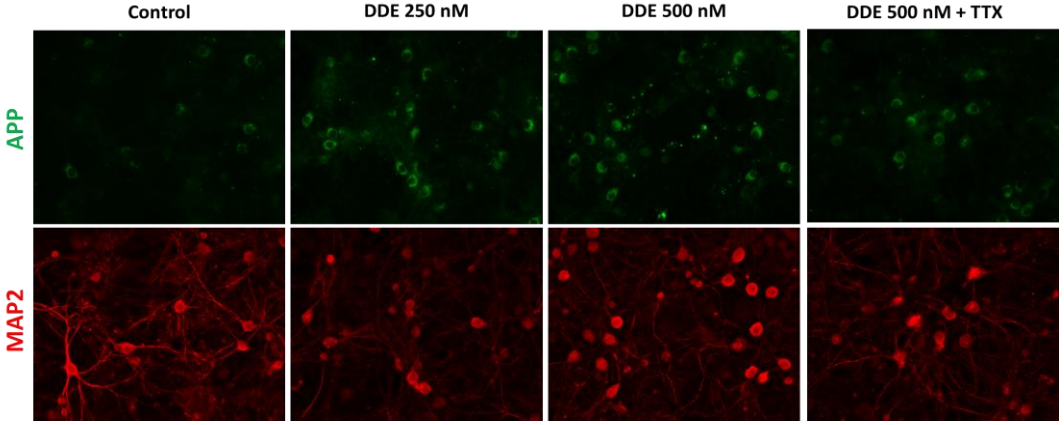


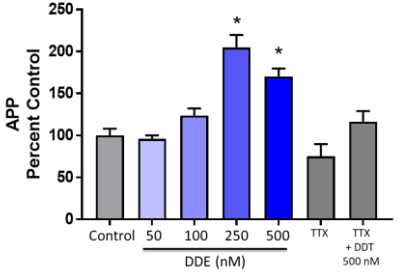
Figure 1: DDT and DDE increase APP levels and secretion of Aβ *in vitro*











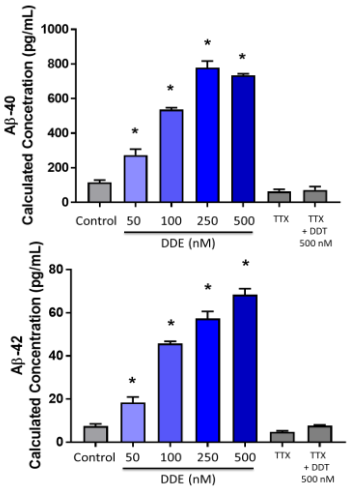
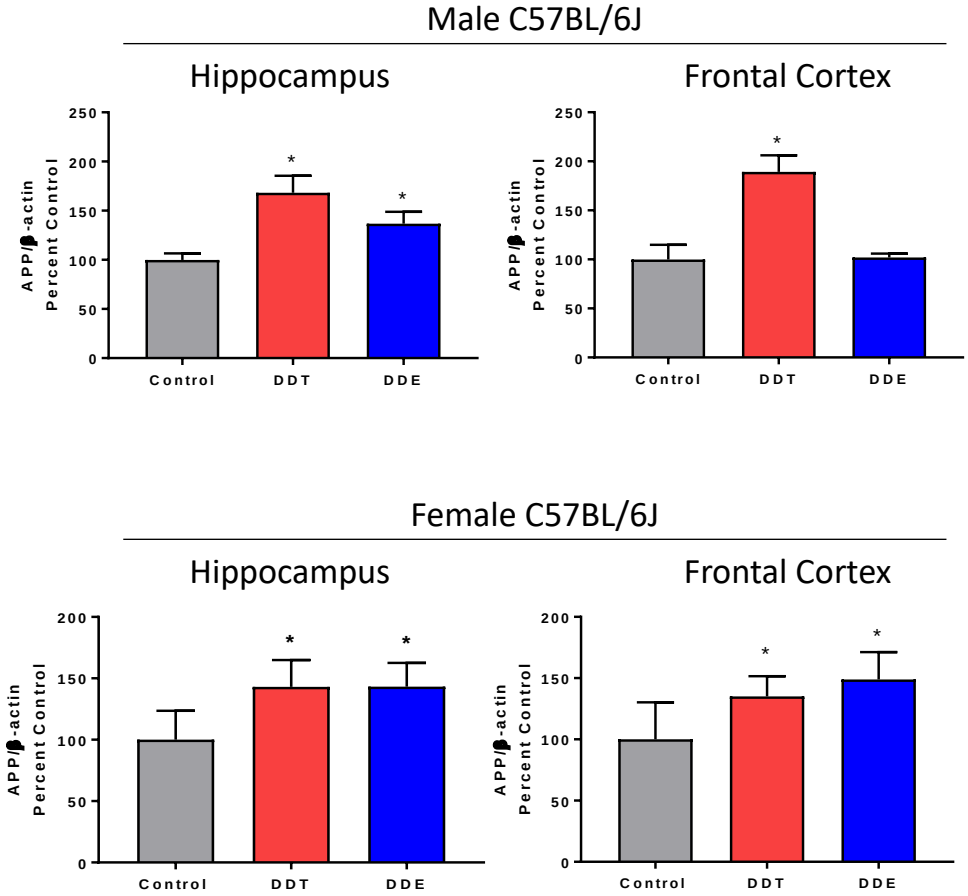
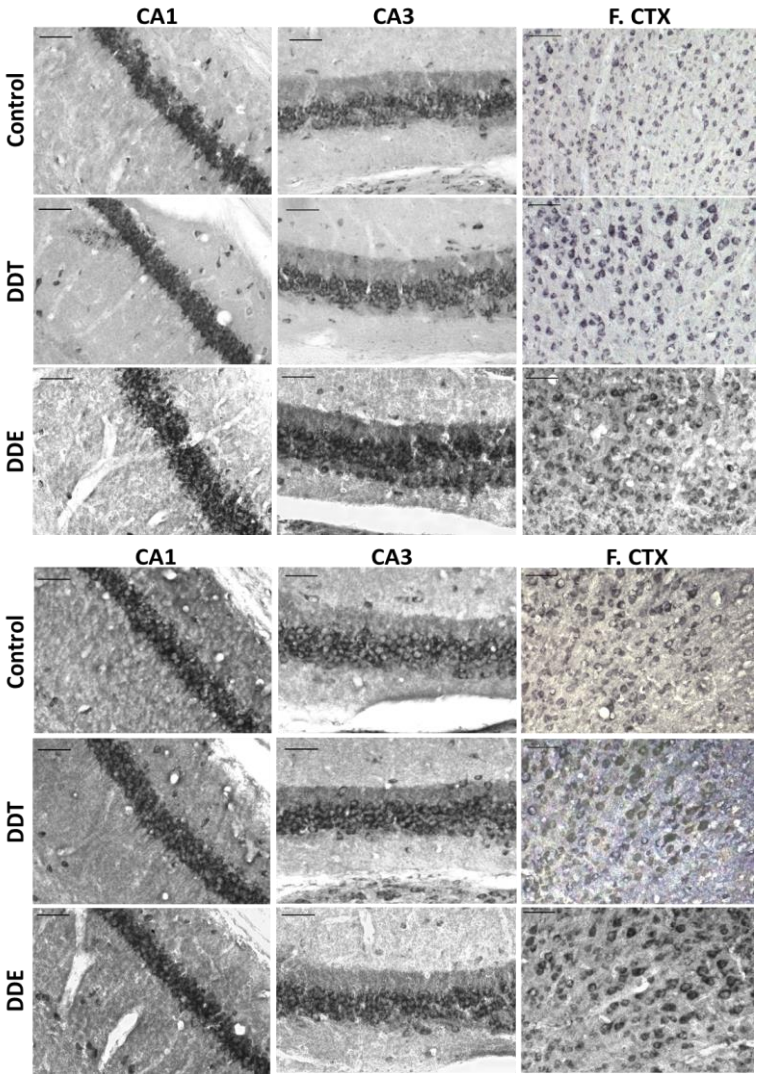


Figure 2: DDT and DDE increase APP levels *in vivo*





Acknowledgements

- I would like to thank:
  - Dr. Jason R. Richardson
  - Dr. Isha Mhatre-Winters
  - Dr. Chunki Kim
  - Yoonhee Han, MS
  - Arturo Barahona, MPH
  - Nicole Blum, BS

- Arab Toxicologist Association Specialty Interest Group
- Society of Toxicology

Supported in part by NIH R01ES026057.

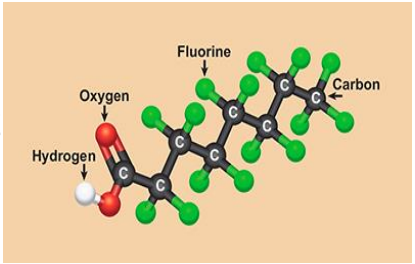
Developmental Neurotoxicity of GenX and PFBS using Zebrafish Model

Ola Wasel[1], Hanna King[1], Youn J. Choi[2,3], Linda S. Lee[2,3] and Jennifer L. Freeman[1]

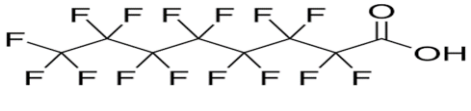
[1]School of Health Sciences, [2]Department of Agronomy, [3]Environmental and Ecological Engineering, Purdue University

Introduction

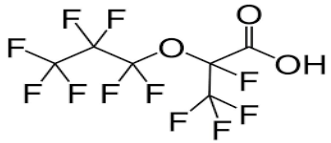
- Perfluoroalkyl substances (PFAS)
- Long-chain PFAS: Bioaccumulation and persistence in the environment
- Alternatives: GenX and PFBS
- Limited information on neurotoxicity of short-chain PFAS



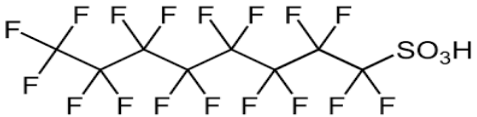
https://www.niehs.nih.gov/health/topics/agents/pfc/index.cfm



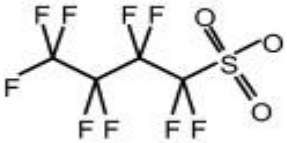
PFOA, C8



GenX (C6)



PFOS, C8



PFBS (C4)

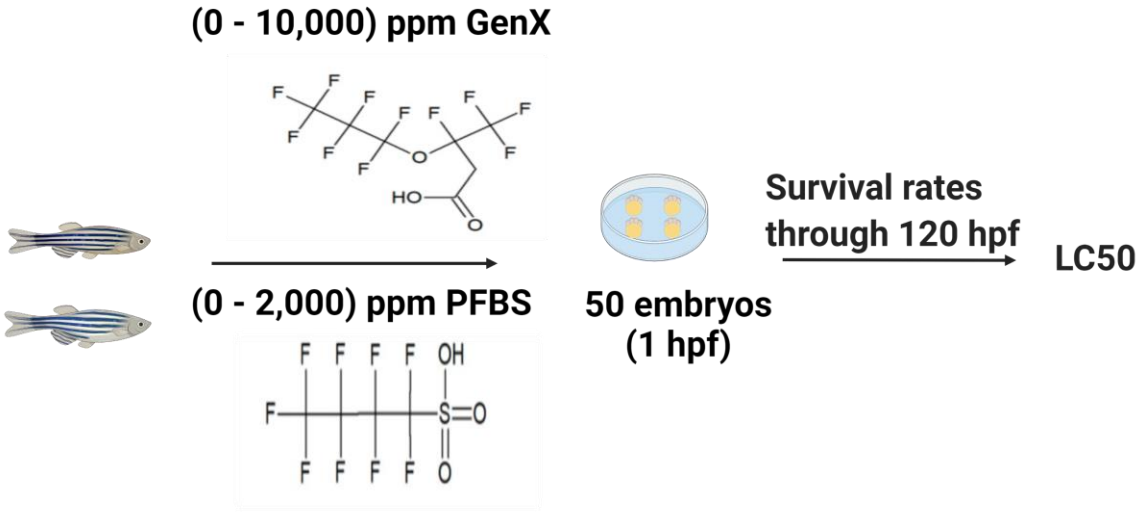
https://www.columian.com/news/2019/mar/03/firefighting-foam-contaminated-northeast-portland-groundwater/

Hypothesis

Exposure to GenX or PFBS will result in developmental neurotoxicity targeting the dopaminergic neurons in zebrafish larvae

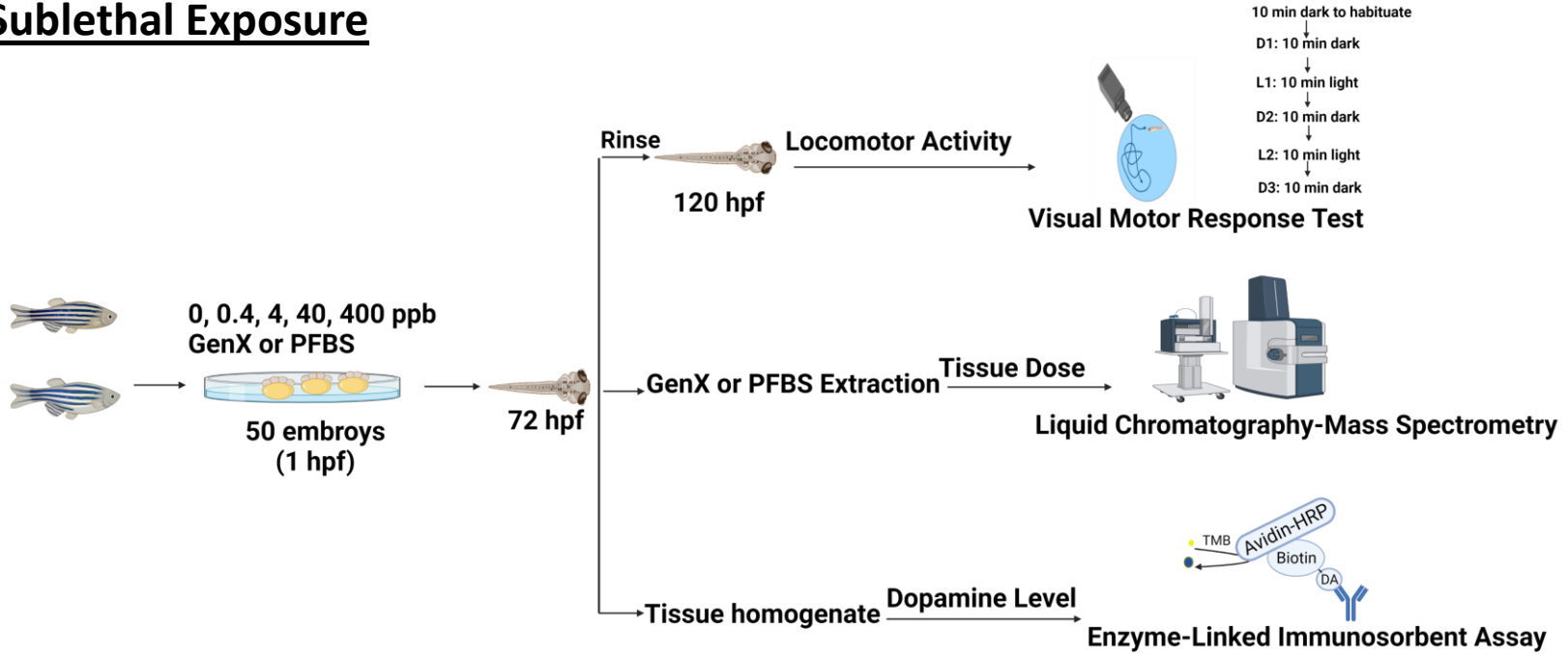
Experimental Design

Lethal Exposure



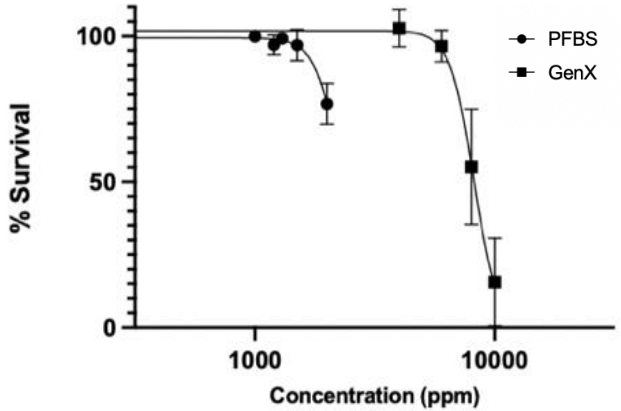
Experimental Design (Cont'd)

Sublethal Exposure



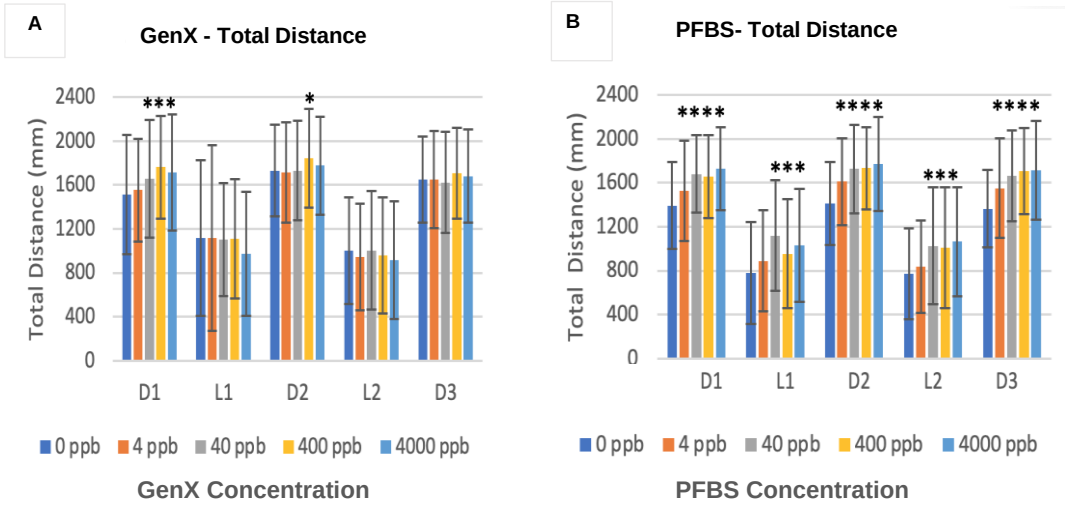
Assessing LC50 of GenX and PFBS

- LC50 of GenX is 8176 ppm (95% CI: 7658-8686)
- LC50 of PFBS >2000 ppm



N=3, 50 subsamples/replicates.
Error bars are standard error.

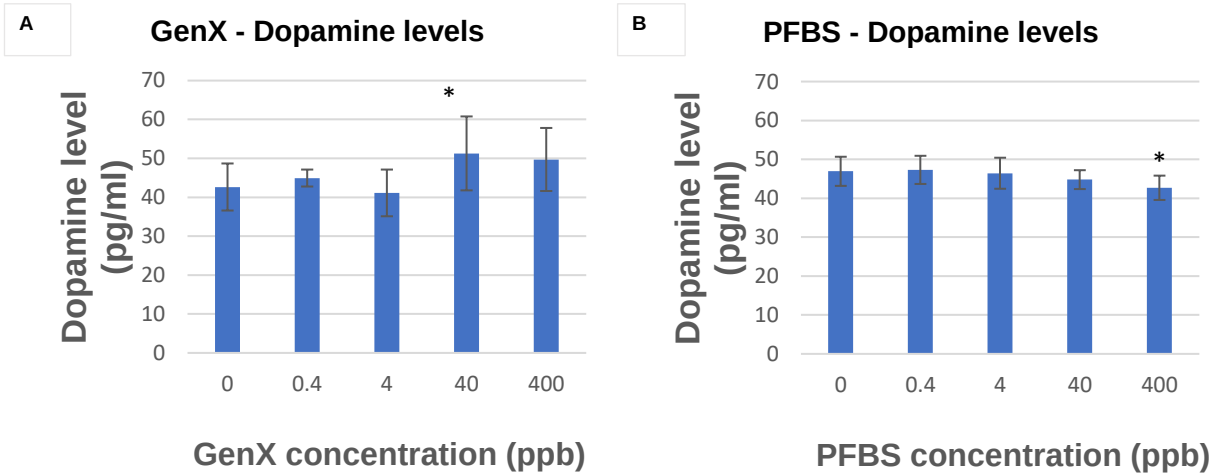
Visual Motor Response Test



Total distance moved by larvae at 120 hpf exposed to GenX (A) or PFBS (B) from 1-72 hpf during dark and light phases in the visual motor response test. GenX exposure resulted in hyperactivity in first two dark phases, while PFBS exposure caused persistent hyperactivity in all tested exposures.

- *p<0.05, Error bars represent standard deviation.
- D: Dark phase, L: Light phase
- N=6-7, with 15-19 subsamples per treatment per replicate to total 111-132 larvae per treatment analyzed.

Measurement of Dopamine Levels



Dopamine levels at 72 hpf with exposure to GenX (A) or PFBS (B) from 1-72 hpf. Exposure to 400 ppb PFBS caused significant increase in dopamine level, while exposure to 40 ppb GenX caused decrease in dopamine level, highlighting different mechanisms of action.

- N=5-7 (pools of 70 larvae), *$p<0.05$, Error bars are standard deviation.

Conclusions and Future Directions

- Acute toxicity of short chain PFAS is less than long chain PFAS
- Short chain PFAS caused similar or higher behavioral changes in zebrafish larvae compared to PFOA and PFOS
- PFSA caused higher behavior changes compared to PFCA
- The behavioral changes pattern for each chemical is unique
- GenX and PFBS exposure caused alterations in dopamine levels
- Tissue dose analysis showed dose-dependent absorption of GenX and PFBS
- Assessment of gene expression of gene related to dopaminergic neurons development will be performed

Acknowledgments

- Dr. Jennifer Freeman
- Dr. Linda Lee
- Hanna King
- Dr. Younjeong Choi
- Freeman Lab

Funding

- University of Illinois at Chicago—NIOSH Pilot Project Research Training Program (Grant # T42/OH008672)
- University of Cincinnati Education and Research Center- NIOSH Pilot Project Research Training Program (Grant #T42OH008432)
- National Institute of Environmental Health Sciences (Grant # 1R21 ES031646-01A1)

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DR. BURHAN GHANAYEM Outstanding Graduate Research Award

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Ibrahim Abdelgawad
University of Minnesota (UMN)

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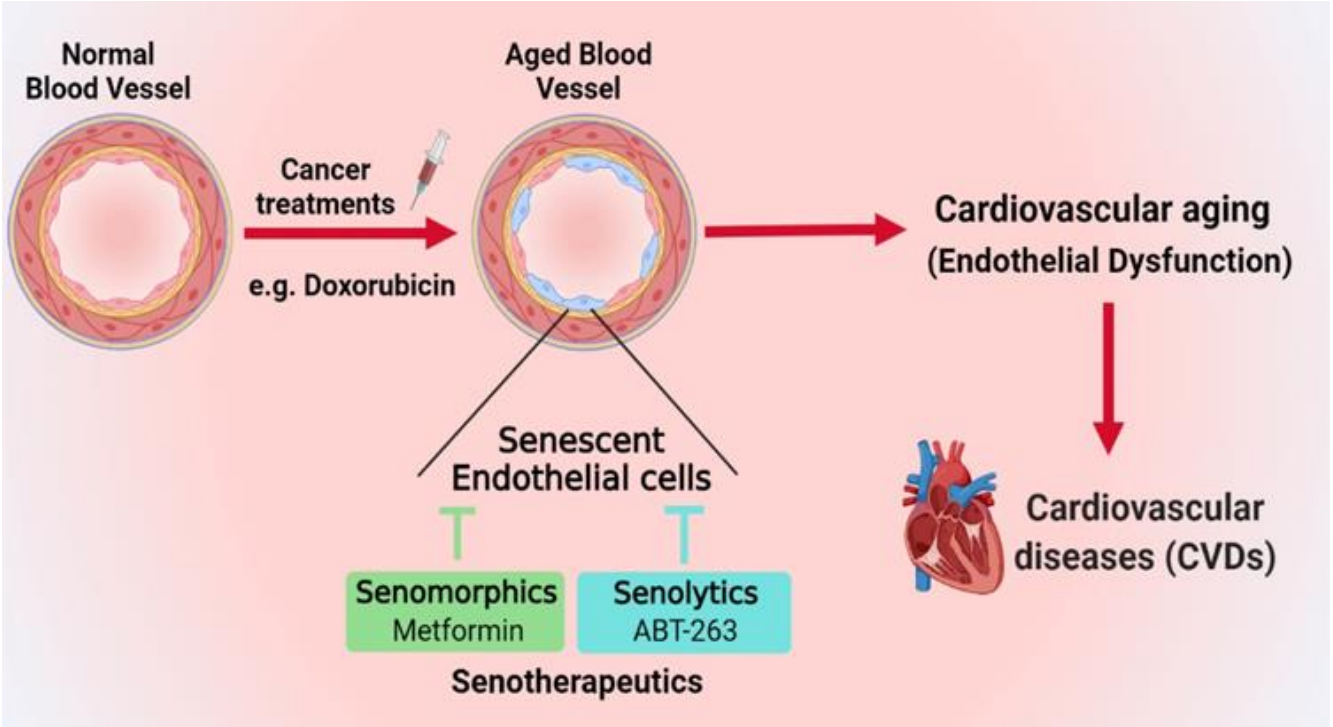
“Molecular Mechanisms and Cardiovascular Ramifications of Doxorubicin-induced Senescence”



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Distinguished Scientific Presentation Award

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Muthanna Sultan
University of South Carolina (USC)

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The Protection Mediated by Endocannabinoid Anandamide Against Staphylococcus Enterotoxin B-induced Acute Respiratory Distress Syndrome is Regulated Through microRNA that Trigger Pro-apoptotic Genes in Immune cells

Muthanna Sultan, Ph.D.
University of South Carolina/Columbia
School of Medicine
Department of Pathology, Microbiology and Immunology

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Best Publication Award

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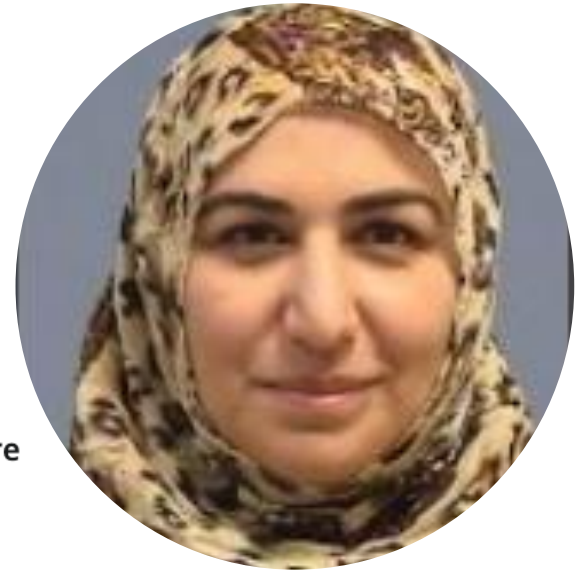

BJP British Journal of Pharmacology

RESEARCH PAPER | Free Access

Protective effects of Δ^9-tetrahydrocannabinol against enterotoxin-induced acute respiratory distress syndrome are mediated by modulation of microbiota

Amira Mohammed, Hasan K. Alghetaa, Juhua Zhou, Saurabh Chatterjee, Prakash Nagarkatti, Mitzi Nagarkatti

First published: 04 August 2020 | https://doi.org/10.1111/bph.15226 | Citations: 12

Amira Mohammed
University of Baghdad

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SOT travel funding for the Graduate Student

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Ola Wassel
Purdue University (PU)

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Outstanding Professional Award

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Mohammad Salamah
American University in Cairo

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Translational Neurodegeneration

ENND Experience

Mohamed Salama, MD PhD

ENND
EGYPTIAN NETWORK
FOR NEURODEGENERATIVE DISEASES

THE AMERICAN UNIVERSITY IN CAIRO
100 YEARS SCHOOL OF SCIENCES AND ENGINEERING
Institute of Global Health and Human Ecology

DAAD

Auswärtiges Amt

DZNE
German Center for Neurodegenerative Diseases
within the Helmholtz Association

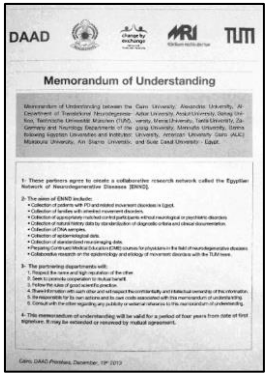
ZSOR
Joint Collaborative Efforts of Egyptian Expatriates and Scientific Organizations towards tackling national R&D challenges

International Parkinson and Movement Disorder Society

Higher Education Dialogue with the Muslim World

The ENND

In December 2013 we founded the „Egyptian Network for Neurodegenerative Diseases“.


DAAD

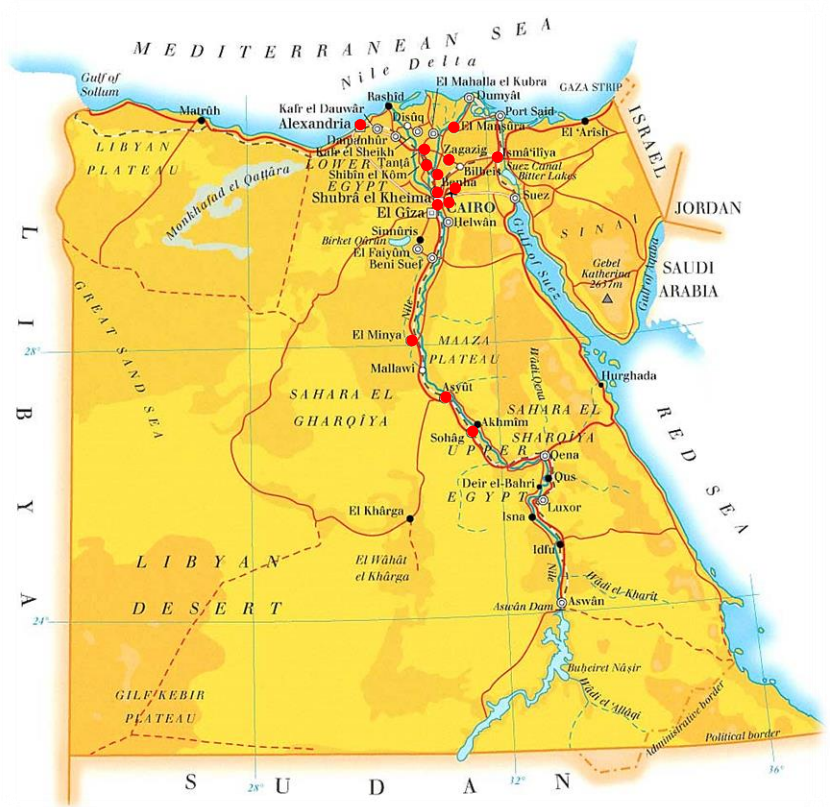
Memorandum of Understanding


DAAD

14 Egyptian universities and TUM coordinators signed a Memorandum of Understanding.

The aim was to build up a network where neurology departments in Egypt work together in studying neurodegenerative diseases.

The ENND



● Location of Partner University

ENND
EGYPTIAN NETWORK
FOR NEURODEGENERATIVE DISEASES

Mansoura University
Cairo University
American University Cairo
Ain-Shams University
Al-Azhar University
Alexandria University
Asyut University
Tanta University
Zagazig University
Menoufia University
Sohag University
Al-Minya University
Benha University
Suez Canal University

Errors!

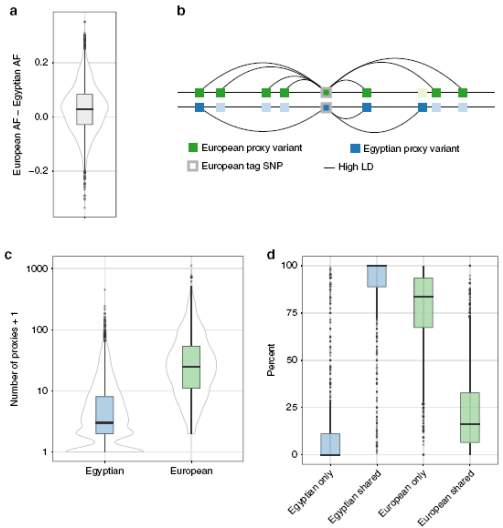
nature COMMUNICATIONS

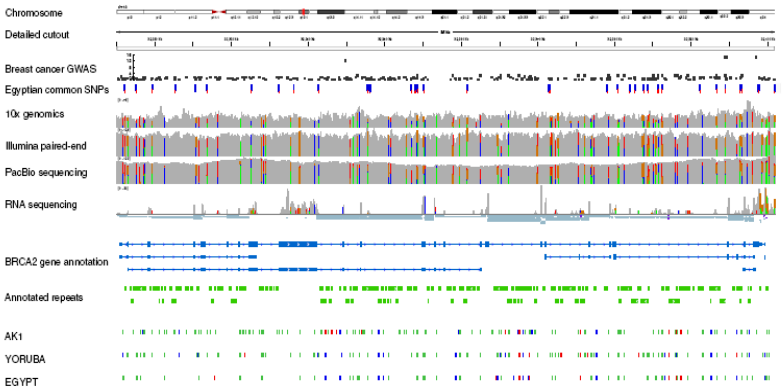
ARTICLE

https://doi.org/10.1038/s41467-020-17964-1 OPEN

An integrated personal and population-based Egyptian genome reference

Inken Wohlers[1], Axel Künstner[1], Matthias Munz[1], Michael Olbrich[1], Anke Fähnrich[1], Verónica Calonga-Solís[1,2], Caixia Ma[3], Misa Hirose[4], Shaaban El-Mosallamy[5], Mohamed Salama[5,6], Hauke Busch[1,7] & Saleh Ibrahim[4,7]





Towards a Longitudinal Study of Egyptian Healthy Aging

February 27, 2020

Authors

As our GBHI delegation walked through downtown Cairo, one of the most densely populated cities in the world, we were immediately struck by the lack of grey-haired men and women. Demographic data for Egypt showed us that our observations were correct; less than 5% of the Egyptian population are aged 65 years and older.

However, that's set to change. And fast.

Like many other low and middle income countries; Egypt's future includes a significant increase in older adults. As one local we met wryly observed

The GBHI team were joined by Dr Ann Hever, Research Manager with The Irish Longitudinal Study on Ageing (TILDA); Professor Kenneth Langa, Associate Director of the Health and Retirement Study (HRS) and Professor Axel Borsch-Supan, Managing Director of the Surveying the Health, Aging and Retirement in Europe (SHARE) study.

Home › International Profile › TUM Global Locations › TUM Global News

TUM Cairo: Surveying Health, Aging and Retirement in the Middle East

11.12.2019

With the aim of starting a dialogue in the field of aging studies, the high-level kick-off meeting Surveying Health, Aging and Retirement in the Middle East took successfully place in Cairo on November 24. The event was hosted by the Academy of Scientific Research and Technology (ASRT) and co-organized by TUM Cairo. It featured the attendance of guest speaker and expert Prof. Axel Börsch-Supan, Professorship Economics of Aging at the TUM School of Management.

GIVING LIFE TO AGING

EM-AGE

Website Content & Mood board proposal

Ribbon Induction

THE AGING GENERATION DESERVES MORE

EM-AGE aims to support senior health policies, raise awareness on determinants of age-related diseases and advocate for better health policies and recommendations for the EM region's older population. We will be inducting a new ribbon in honor of our demographic which will be known as the Golden Ribbon.

The ENND.
It's just the beginning.

Thank you for your attendance.

5. ATA Accomplishments

Social Media:
#ATA_SOT2022

- Webinars
  - Event title: “Overview of Non-Clinical Safety Assessment for Vaccines and Antiviral Drug Development.”
    - Joined with American Association of Chinese in Toxicology (AACT)
    - The University of Baghdad
    - Chinese Toxicology Society

Ahmed Abdelmoneim, BVMS, MSc, PhD

- Webinars
  - Upcoming New Webinar
  - Event title: “ Overview of Bioinformatic Sequence Analysis and Applications in Toxicology.”

Tamer A. Mansour, MBChB, MSc, PhD

- Newsletters
  - Two issued volumes available on the website
- ATA members on SOT spotlight
  - Dr. Wafa interview
  - Dr. Mohamed Ghorab

Saeed Alqahtani, MS, PhD Candidate

Best Publication Award

Mohamed Ghorab, MS, PhD

Outstanding Professional Award

Christiana Awada, BSc, Master Student

Graduate Student Best Abstract

ATA SOT Est. 2019
Arab Toxicologists Association

- Awardees
  - Increased the number of awardees and the available awards

Social Media:
#ATA_SOT2022


ATA SOT
Est. 2019
Arab Toxicologists Association
Want big impact?
Join Us Today!
Social Media:
#ATA_SOT2022

Members Joined Today!

First 10 members:

- Promote their activities through newsletters
- One-on-One connection with toxicologists experts
- Support in achieving their career goals

Second 10 members:

- One-on-One connection with toxicologists experts
- Support in achieving their career goals

Third 10 members:

- Support in achieving their career goals

Social Media:
#ATA_SOT2022

Experience Share from A Graduate Representative

- Promote Graduate Students Success!
  - Connecting with researchers
  - Advancing teamwork skills

Graduate Representative
Saeed Alqahtani

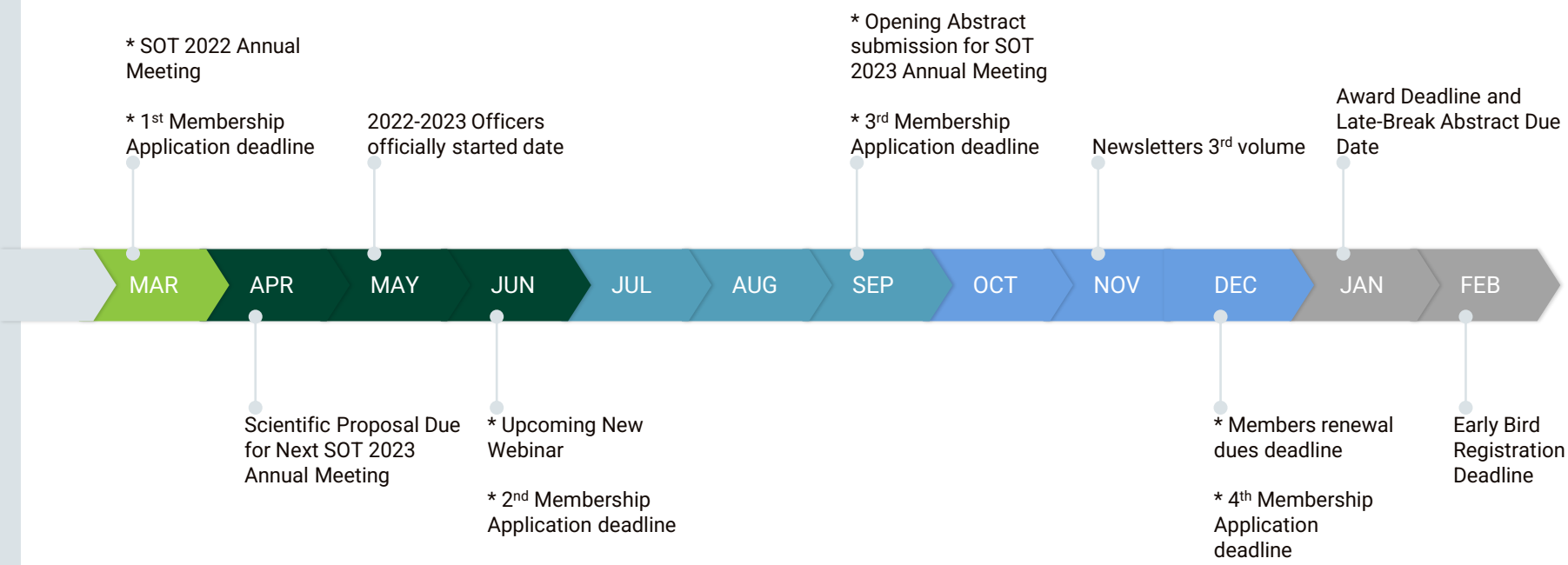
Social Media:
#ATA_SOT2022

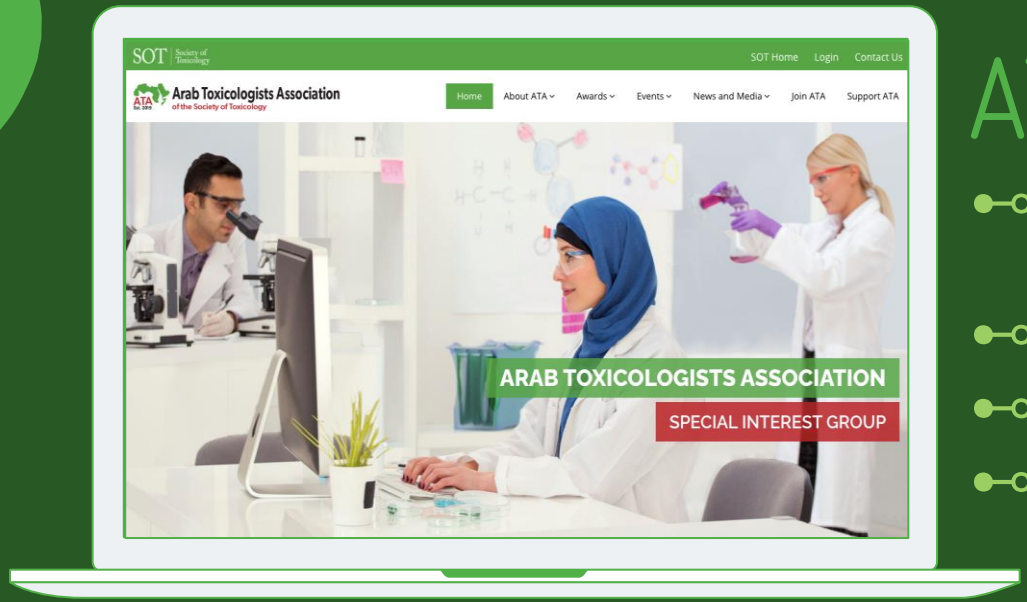
ATA SOT Est. 2019
Arab Toxicologists Association

2. ATA SOT Timeline

Social Media:
#ATA_SOT2022

Timeline


* SOT 2022 Annual Meeting
* 1st Membership Application deadline
2022-2023 Officers officially started date
* Opening Abstract submission for SOT 2023 Annual Meeting
* 3rd Membership Application deadline
Newsletters 3rd volume
Award Deadline and Late-Break Abstract Due Date
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
JAN
FEB
Scientific Proposal Due for Next SOT 2023 Annual Meeting
* Upcoming New Webinar
* 2nd Membership Application deadline
* Members renewal dues deadline
* 4th Membership Application deadline
Early Bird Registration Deadline



ATA SOT Website

- Membership Benefits and how to join
- ATA support form
- Awards and Awardees
- Past and upcoming webinars

Thanks!

Any questions?

You can find us at:

- ATA SOT website
  www.toxicology.org/groups/sig/ATA/index.asp
- Survey form to receive due Mar 29th, 2022
  ATA SOT Attendance Certificate