



FACTORS THAT MAY CONTRIBUTE TO RESEARCH MISCONDUCT: A CASE STUDY

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9 July 2019

Photo: mahidol.ac.th/symbolic

Fundamental Principles Underlying Research

Transparency
Accountability

真心

จริยธรรม
Jariyatam

Responsibility
Objectivity Honesty...

True heart

Trust

诚信

Respect for Autonomy, Nonmaleficence, Beneficence, Justice ...Confidence

Equipose Empathy Humility

Dignity Rights Welfare ...



Mahidol University
Wisdom of the Land

Code of Good Governance

Mahidol University



Mahidol sets the tone

[http://www.tm.mahidol.ac.th/research/ORIC/Good Governance_EN.pdf](http://www.tm.mahidol.ac.th/research/ORIC/Good_Governance_EN.pdf); accessed 7 July 2019.



**Mahidol
Faculty of Tropical Medicine
is a model of integrity!**

SINGAPORE STATEMENT ON RESEARCH INTEGRITY (2010)

Honesty in all aspects of research

Accountability in the conduct of research

Professional courtesy and fairness in working with others

Good stewardship of research on behalf of others

<https://wcrif.org/guidance/singapore-statement>

(accessed 22 May 2019)

ARC of Integrity



Accountable Administrators take **A**ppropriate Action and are **A**ttentive to All

Responsible, **R**espectful Researchers serve as **R**ole models

Community Coordinates to **C**ontribute to a **C**ulture of integrity
and **C**ommunicates with **C**ompassion

U.S. BEGINNINGS

OFFICE OF SCIENTIFIC INTEGRITY 1989
OFFICE OF RESEARCH INTEGRITY 1992

Fabrication, Falsification, Plagiarism in proposing, performing, reviewing or reporting research funded by the U.S. Public Health Service, ... (see 42 CFR 93; 2005)

Intentional, knowing, reckless

Preponderance of the evidence

Significant departure from accepted practices

(Does not include honest error or differences of opinion)

U.S. SCOPE

OFFICE OF SCIENTIFIC INTEGRITY 1989
OFFICE OF RESEARCH INTEGRITY 1992

~**4,000 institutions** with assurances with Office of Research Integrity (~400 non-U.S.)

~**400 queries and allegations** per year

~**35-40 cases opened** per year

~**10-15 public findings** of research misconduct per year

Office of the Secretary

Findings of Research Misconduct

AGENCY: Office of the Secretary, HHS

ACTION: Notice.

SUMMARY: Notice is hereby given that the Office of Research Integrity (ORI) has taken final action in the following case:

Meredyth M. Forbes, Albert Einstein College of Medicine: Based on an assessment conducted by the Albert Einstein College of Medicine (AECM), an admission from the Respondent, and additional analysis conducted by ORI in its oversight review, ORI found that Ms. Meredyth M. Forbes, former Graduate Student, AECM, engaged in research misconduct in research supported by National Institute of General Medical Sciences (NIGMS), National Institutes of Health (NIH), grants R01 GM089979, T32 GM007491, R01 GM55101, and R01 GM88202 and National Institute of Child Health and Human Development (NICHD), NIH, grant T32 HD007502.

ORI found that Respondent engaged in research misconduct by intentionally falsifying and/or fabricating data related to the following three (3) published papers and four (4) meeting presentations:

- Development. In press, published online, Dec 23, 2015; doi:10.1242/dev.129023 (hereafter referred to as the "December 2015 Development paper")
- Cell Reports 12:49-57, 2015 (hereafter referred to as the "Cell Reports paper")
- Development 142(15):2704-18, 2015 Aug 1 (hereafter referred to as the "August 2015

Falsification/fabrication of DATA



Follow Us on Twitter



PHS Administrative Action Bulletin Board



Annual Report System

Social Media

Twitter

ORI Blog



Research Integrity
@HHS_ORI

"Addressing scientific integrity requires a common understanding of the issues at stake." [www.nyfpa.org/0fUorB](#)
#integrity #transparency



Research, regulatory,...
jclinepi.com



Oct 16, 2017

FABRICATION

*Making up data or results
and recording or reporting them*

(U.S. 42 CFR 93)



Patient ID: 56798 Center ID: Oct 15, 2018 Date:
 Name of the Patient: Kaleo Wong Age (years): 45 Sex: M F
 Contact Number: Address: 85 Nuuanu Avenue

History of	Yes	Duration
Smoking	<input checked="" type="checkbox"/>	
Alcohol	<input checked="" type="checkbox"/>	
Burning in feet	<input type="checkbox"/>	
Amputation	<input type="checkbox"/>	
Heart attack/ stroke	<input checked="" type="checkbox"/>	
Diabetes	<input checked="" type="checkbox"/>	
Hypertension	<input type="checkbox"/>	
Dyslipidemia	<input type="checkbox"/>	
On ACE -I	<input type="checkbox"/>	
On ARBs	<input type="checkbox"/>	
On statins	<input type="checkbox"/>	

Family history of	Yes	No
Diabetes mellitus	<input type="checkbox"/>	<input type="checkbox"/>
Kidney disease	<input type="checkbox"/>	<input type="checkbox"/>
High blood pressure	<input type="checkbox"/>	<input type="checkbox"/>
Heart disease	<input type="checkbox"/>	<input type="checkbox"/>

Personal Details	Details
Height (cm)	5'11"
Weight (kg)	150
Waist circumference (cm)	
BMI	
Education	

	Visit 1			Visit 2			Visit 3		
Date of Visit									
Blood									
RBS									
Dip stick parameter	Y	N	ARB / ACE	Y	N	ARB / ACE	Y	N	ARB / ACE
Urobilinogen									
Bilirubin									
Ketone									
Blood Protein									
Nitrite									
Leukocytes									
Specific gravity									
Ph									
Microalbumin									

Hospital Name: Financeexpressdealerlogin.info Seal
 Place: _____
 Doctor's Signature:  Date: 12 Oct 18

(Data Fabricated by ZHH)
 Sample Case Report Form
<https://www.inherwake.com/research-report-form/example-case-report-form-clinical-research-greatest-clinical-trial/>
 Accessed 17 October 2018

FALSIFICATION

manipulating research materials, equipment, or processes, or changing or omitting data or results such that the research is not accurately represented in the research record

(U.S. 42 CFR 93)



CAN YOU SPOT RESEARCH MISCONDUCT?

INVESTIGATING IMAGE MANIPULATION

OBJECTIVE

See if you can detect the research misconduct in this sample results section.

METHODS

Thoroughly review the images below to determine what was falsified or fabricated.

RESULTS

Check your findings with the explanations in the discussion section.

FIGURE 1. COMET ASSAY

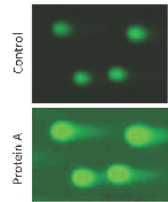


FIGURE 2. IMMUNOFLUORESCENCE COLOCALIZATION ASSAY

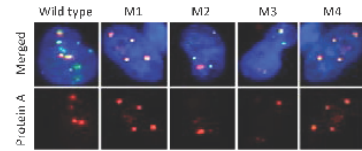


FIGURE 3. WESTERN BLOT

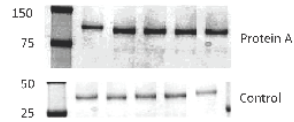
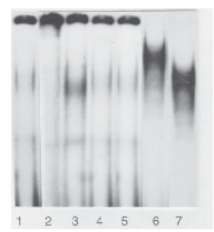


FIGURE 4. GEL SHIFT ASSAY



DISCUSSION



FIGURE 1. COMET ASSAY

The control image was cropped and relabeled as the image for Protein A. It was also intentionally lightened to make the "tails" appear longer.

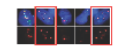


FIGURE 2. IMMUNOFLUORESCENCE COLOCALIZATION ASSAY

M1 and M4 are the same image but flipped vertically.



FIGURE 3. WESTERN BLOT

The top panel and bottom panel of Figure 3 are from the same source image. The Protein A blot image has been flipped horizontally and represented as the control blot image.



FIGURE 4. GEL SHIFT ASSAY

Lanes 1, 4, and 5 are from the same image source and were relabeled and reused to represent different experimental conditions.

CONCLUSION

Readers play an important role in detecting image manipulations. If you think you see research misconduct, make your concerns known to your institutional Research Integrity Officer.

DID YOU SPOT IT?

Learn more about image processing at: <http://ori.hhs.gov/ImageProcessing>



TIPS FOR PRESENTING SCIENTIFIC IMAGES with INTEGRITY

Images should clearly and correctly represent research results. Minor image processing may be acceptable but, as depicted below there's a fine line between enhancing an image and distorting it.

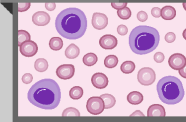
BE AWARE:

Undocumented image manipulations can lead to accusations of research misconduct.

67% of ORI's closed research misconduct cases involved image manipulations.*

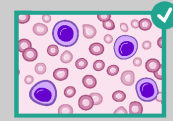
*between 2011 and 2015

ORIGINAL IMAGE

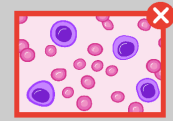


COLOR ENHANCEMENTS

Changing the contrast, color, or brightness



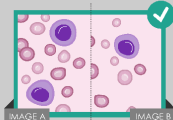
Ensure that the meaning of the image stays the same and fine details are not removed.



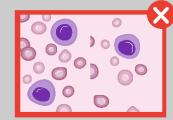
Contrast and saturation were increased causing the background cells to disappear.

SPLICE & PASTE

Combining multiple images into one image



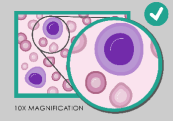
Clearly indicate where two images were joined using a dividing line and labels.



Two images were combined causing them to look like new data.

CROP

Cutting out components and resizing



Use a magnification panel to highlight desired visual data.



Reference information was selectively removed from the image causing loss of data.

WHAT ELSE MUST YOU DO?

- ✓ Clearly document all changes made to an image.
- ✓ Retain the unprocessed image for your records.
- ✓ Follow journal guidelines for permissible processing.

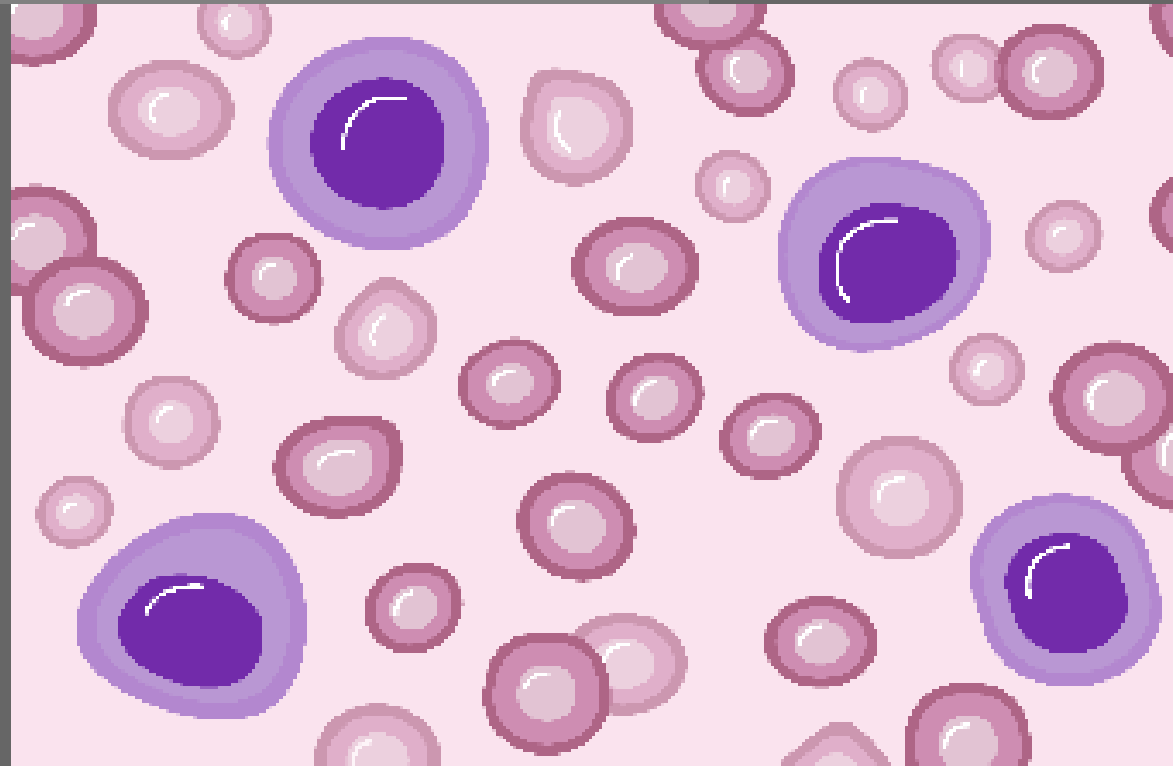
LEARN MORE ABOUT IMAGE PROCESSING:
<http://ori.hhs.gov/ImageProcessing>



FALSIFICATION/
FABRICATION
OR
BEAUTIFICATION?

U.S. Office of Research Integrity,
ori.hhs.gov/infographics.
Accessed 15 October 2018

ORIGINAL IMAGE

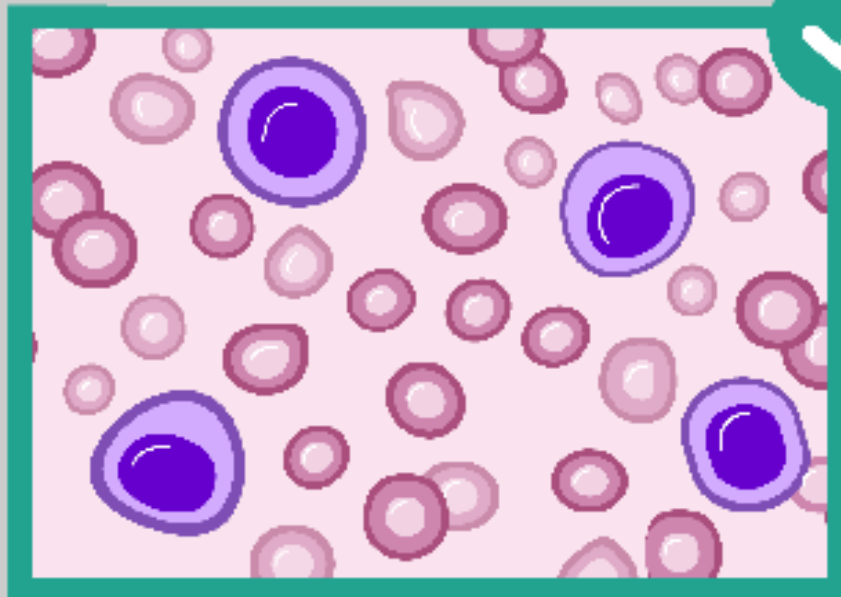


Excerpted from “Tips for Presenting Scientific Images with Integrity.”

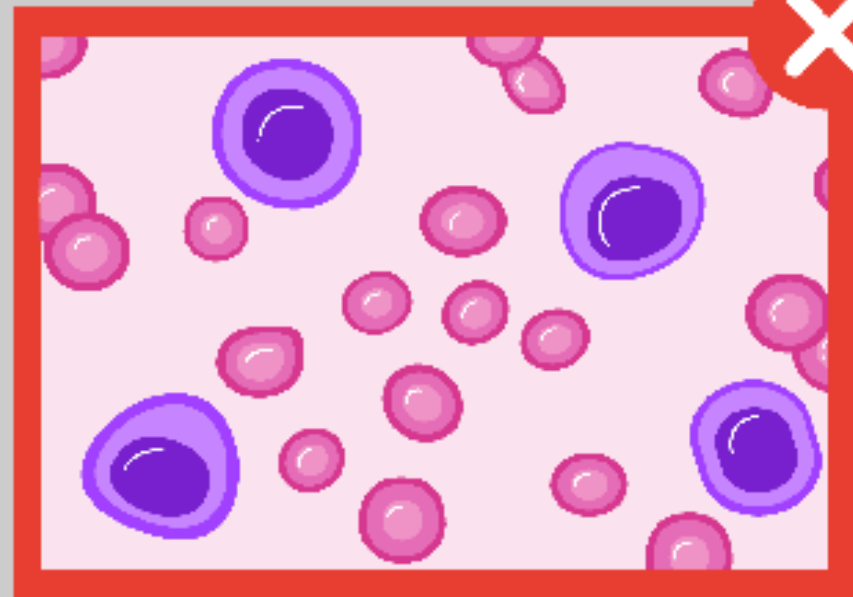
U.S. Office of Research Integrity, ori.hhs.gov/infographics. Accessed 15 October 2018

COLOR ENHANCEMENTS

Changing the contrast, color, or brightness



Ensure that the meaning of the image stays the same and fine details are not removed.



Contrast and saturation were increased causing the background cells to disappear.

Excerpted from “Tips for Presenting Scientific Images with Integrity.”

U.S. Office of Research Integrity, ori.hhs.gov/infographics. Accessed 15 October 2018

SPLICE & PASTE

Combining multiple images into one image

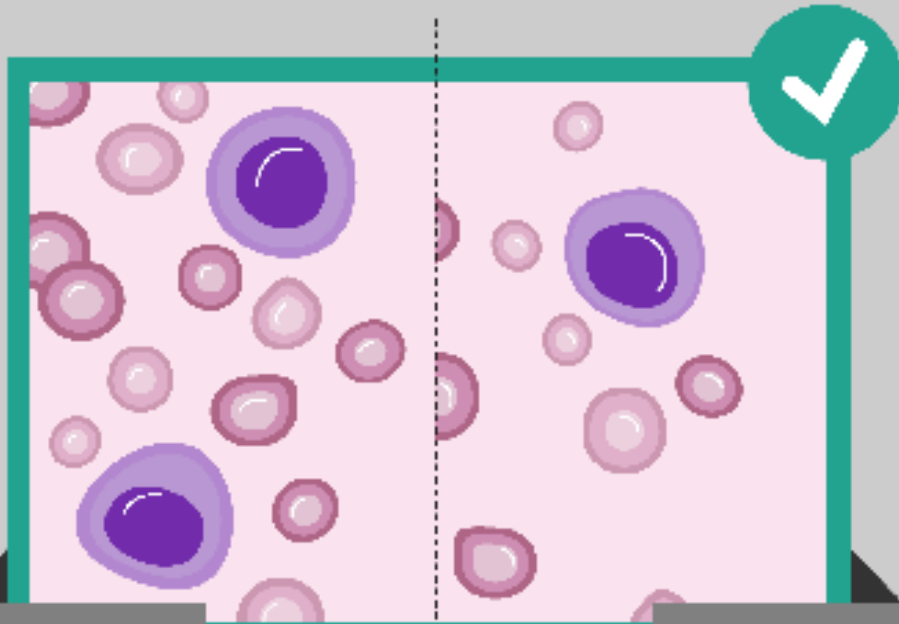
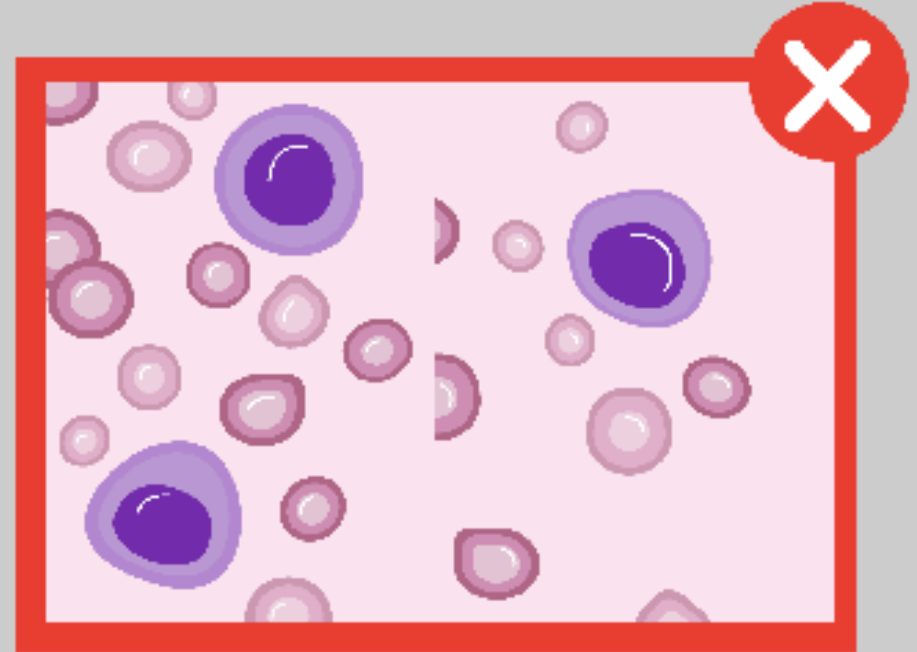


IMAGE A

IMAGE B

Clearly indicate where two images were joined using a dividing line and labels.



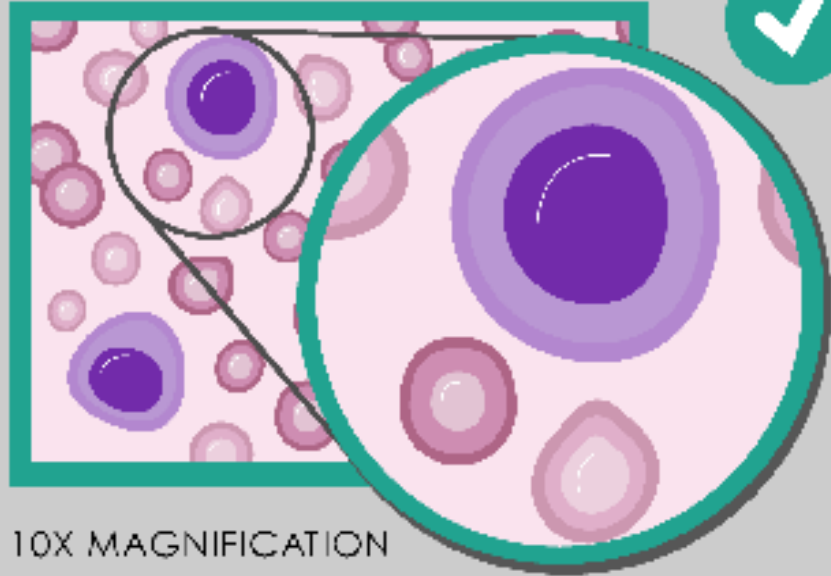
Two images were combined causing them to look like new data.

Excerpted from “Tips for Presenting Scientific Images with Integrity.”

U.S. Office of Research Integrity, ori.hhs.gov/infographics. Accessed 15 October 2018

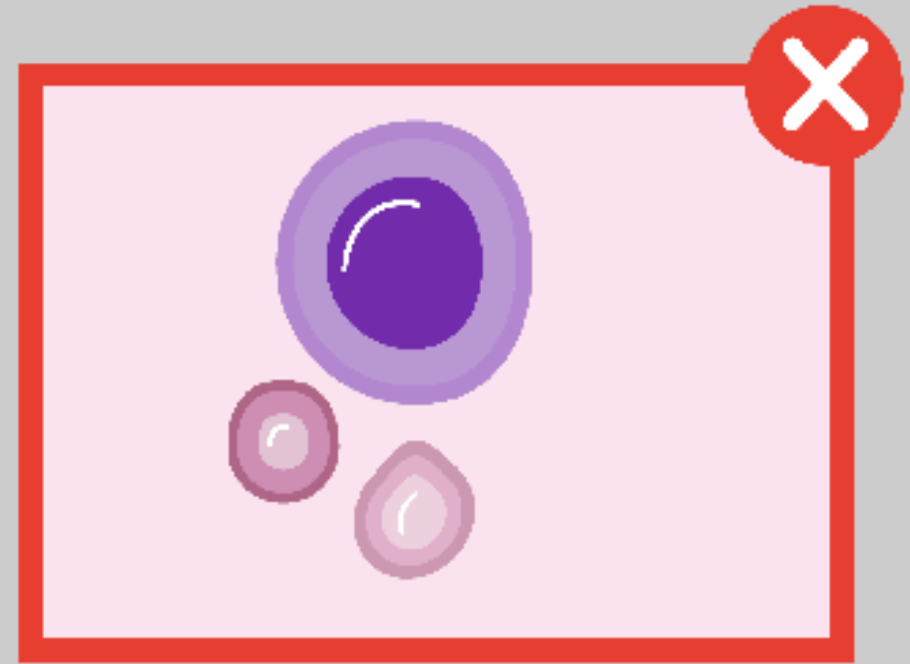
CROP

Cutting out components and resizing



10X MAGNIFICATION

Use a magnification panel to highlight desired visual data.



Reference information was selectively removed from the image causing loss of data.

Excerpted from “Tips for Presenting Scientific Images with Integrity.”

U.S. Office of Research Integrity, ori.hhs.gov/infographics. Accessed 15 October 2018

PLAGIARISM

appropriation of another person's ideas, processes, results, or words without giving appropriate *credit*

(UH Executive Policy 12.211)



PLAGIARISM TEST

The test of plagiarism is whether the work will give an ordinary reader a reasonable impression that the work is the original work of the author when it is in fact a copy of the work of someone else.

ATTENTION: What is wrong with this slide?



ACKNOWLEDGE THE WORK OF OTHERS

“The test of plagiarism is whether the work will give an ordinary reader a reasonable impression that the work is the original work of the author when it is in fact a copy of the work of someone else.”

What is Plagiarism? Referenced in Hong Kong University Research Integrity Policy; 2017. <http://www.rss.hku.hk/plagiarism/page2s.htm>. Accessed 15 October 2018.

“RESEARCH MISCONDUCT” IS OFTEN BROADER THAN FFP

Other breaches of integrity can include:

- Abuse of confidentiality
- Property violation; Misappropriation of funds
- Improprieties of authorship
- Violation of conflicts of interest policy
- Violation of generally accepted research practices
- Mistreatment of human or animal research subjects, ...

EDUCATION AND TRAINING

Conflicts of interest (e.g. technology transfer/industry research)

Data management

Mentor/mentee relationships and & collaborations

Animal/human/biosafety research

Peer review

Authorship/publication/writing skills

Research misconduct

Integrity in innovation and impact

Unclear connection between “RCR education” and prevention of misconduct

Face-to-face training and superb supervision are key

Scholarly Explanations for Research Misconduct

Sufficient opportunity (Adams and Pimple; 2005)

Perceived organizational injustice (Martinson et al.; 2006)

Competition among researchers (Anderson et al.; 2007)

Multiple causal factors (Davis et al.; 2007)

Mentors not reviewing the source of data and setting standards
(Wright et al.; 2008)

Individual psychological traits and circumstances (Kornfeld; 2012)

Individual factors, narcissistic thinking
(DuBois et al.; 2013)

Excerpted from Hammatt presentation at 4th World Conference on Research Integrity; co-authored by Dr. Raju Tamot and Dr. John Dahlberg.

“Causes” of Research Misconduct



Excerpted from Hammatt presentation at 4th World Conference on Research Integrity; co-authored by Dr. Raju Tamot and Dr. John Dahlberg.

ABSENT-MINDED ANSUCHA

Aspiring ... but often not taking appropriate action

Always forgetful

Amazingly airy

Asks questions but doesn't always follow directions

NEGLECTED NAT

Never learned proper skills and knowledge

Not supervised, and *not good at notebooks*

No one sees his raw data

Never seeks help

Needs a visa...nervous

Naïve

Near the edge of distress...!

RACING RAWEE

Running all the time

Reaching for rewards

Racing against the competition

Rarely checks raw data

Rarely rests...

Rush rush rush!

NARCISSISTIC NANTANA

Never admits she is wrong

Never listens to others

Knows everything about everything

Needs attention all the time

Not nice...!

BULLYING BAHN

Boisterous

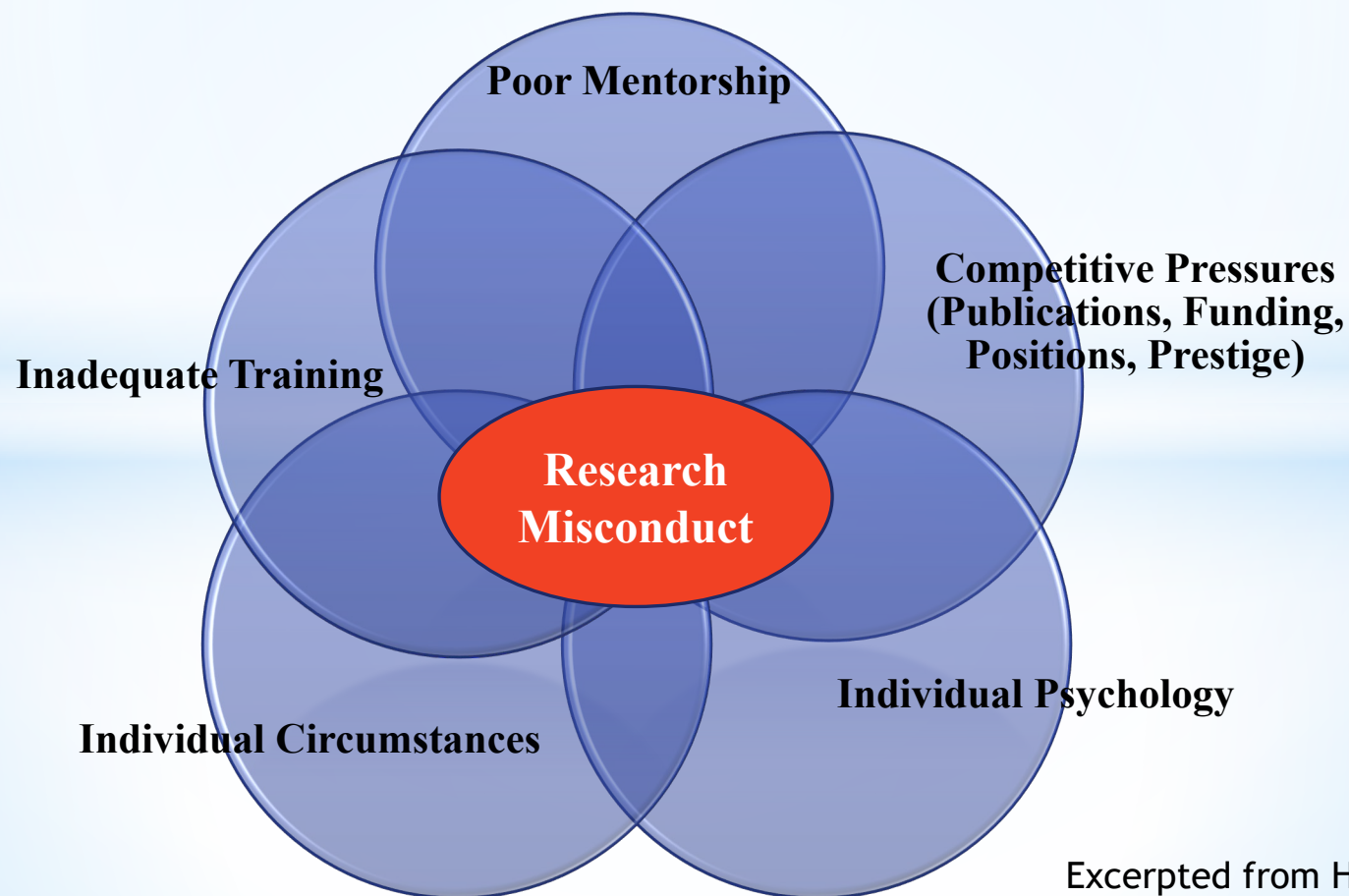
Big shot

Believes he's the brightest

Best friends with the boss

Beats others down to feel "big"

“Causes” of Research Misconduct



Excerpted from Hammatt presentation at 4th World Conference on Research Integrity; co-authored by Dr. Raju Tamot and Dr. John Dahlberg.

PERFECT PRASIT

Patient and Pleasant

Persistent

Perceptive

Present

Prioritizes Properly

Princely...!



Administrators: Accountable, Active, Attentive to All

Provide incentives

awards, recognition, staff support, “integrity week”

Create coordinated systems

oversight, assessment, sample agreements, help desk

Talk openly about integrity issues

orientation for all new and visiting scholars,
posters, champions and informal channels, process
for handling concerns



Researchers:

Responsible, Respectful Role Models

Be Present & provide training and guidance

make time, be approachable

Review raw data

understand where problems may arise

Talk openly about integrity issues

incorporate into lab meetings

discuss triumphs and disasters

explore gray zones and real examples

agree on shared expectations



Community: creates a culture of integrity

Compassionate

Communication

Collaboration



Asia Pacific Research Integrity Network 2015 Planning Committee Members



Paul Taylor

University of Melbourne,
Australia



Sun Ping

Ministry of Science and
Technology, China



In Jae Lee

Seoul National University of
Education, South Korea



Paul Tam

The University of Hong
Kong, Hong Kong



Ovid Tzeng

Academia Sinica,
Taiwan



Suniti Solomon

VHS Hospital, India



Prasit Palittapongarnpim

Mahidol University,
Thailand



Takaaki Goto

The University of Tokyo
Hospital, Japan



Theresa Sawicka

Victoria University of
Wellington, New Zealand



Anwar Ali Siddiqui

Aga Khan
University, Pakistan



Eric Mah

University of California,
San Francisco, U.S.



Susan Garfinkel



Zoë Hammatt



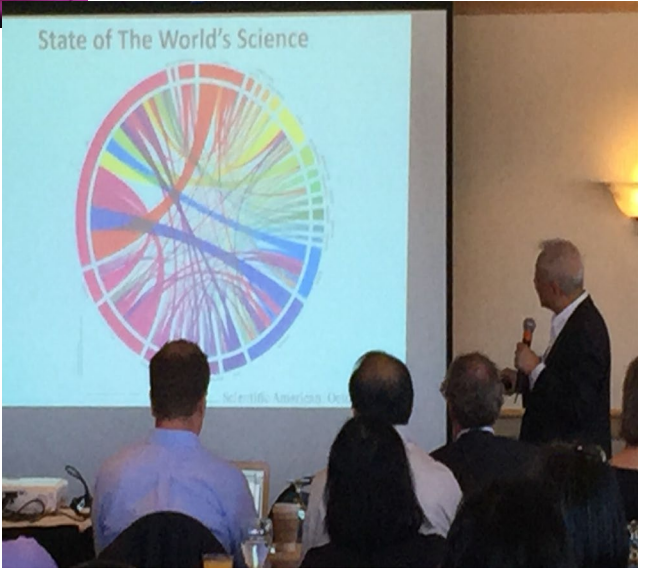
Tony Mayer

Nanyang Technological
University, Singapore

APRI San Diego 2016



Thailand!



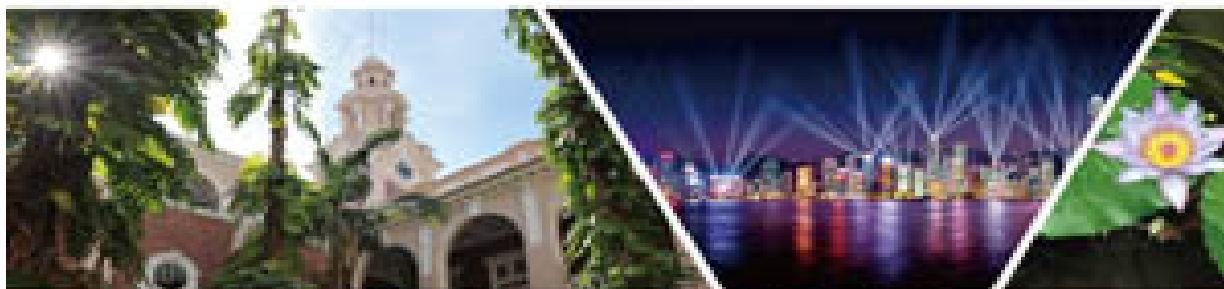
ASIA PACIFIC RESEARCH INTEGRITY NETWORK MEETING

HOSTED BY
UNIVERSITY OF
HONG KONG

FEBRUARY 2017

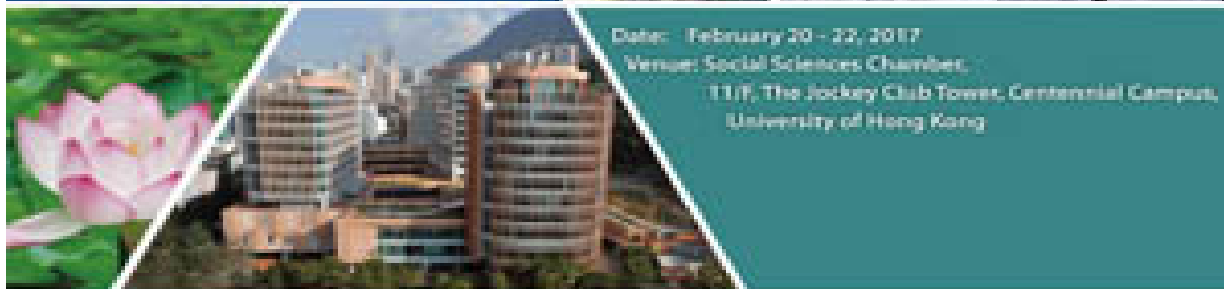


Asian and Pacific Rim Research Integrity (APRI)
Network Meeting 2017



Deadline for Abstract Submission
December 20, 2016

Deadline for Early Registration
January 9, 2017



Date: February 20 - 22, 2017
Venue: Social Sciences Chamber,
11/F, The Jockey Club Tower, Centennial Campus,
University of Hong Kong

APRI Network Meeting 2017 Secretariat

c/o Research Services, Registry
The University of Hong Kong
Pokfulam Road, Hong Kong

Registration and Abstract Submission: apri2017.apriic.com.hk
General Enquiry: apri2017@hkust.hk / (852) 2241 5267 (tel)

Website: www.apri-network.org



UC San Diego





ASIA PACIFIC RESEARCH INTEGRITY

NETWORK MEETING
FEBRUARY 26-28, 2018
TAIPEI, TAIWAN

- AUSTRALIA
- CHINA
- TAIWAN
- HONG KONG
- INDIA
- ISRAEL
- JAPAN
- SOUTH KOREA
- RUSIA
- AN FE
- SINGAPORE
- AUSTRIA
- BELGIUM
- DENMARK
- FINLAND
- FRANCE
- GERMANY
- ITALY
- NETHERLANDS
- SPAIN
- SWEDEN
- SWITZERLAND
- U.K.
- CANADA
- U.S.

คู่มือการบันทึกข้อมูลงานวิจัย

จัดทำโดย
ฝ่ายพัฒนาคุณภาพการวิจัย
สำนักงานพัฒนาวิทยาศาสตร์และเทคโนโลยีแห่งชาติ

แนวทางการเผยแพร่ผลงานทางวิชาการ



สำนักงานพัฒนาวิทยาศาสตร์และเทคโนโลยีแห่งชาติ (สวทช.)

New NSTDA guidelines on Recordkeeping and Authorship 2019



การวิจัยเพื่อการพัฒนาาระบบและการ ประเมินผล: ตอบสนองความพึงพอใจใน การพัฒนาาระบบการวิจัยของประเทศ

สนับสนุนโดย สำนักงานคณะกรรมการนโยบายวิทยาศาสตร์ เทคโนโลยี และนวัตกรรมแห่งชาติ

คลิกเพื่อดูภาพเพื่ออ่าน รายงานวิจัยฉบับสมบูรณ์

ศ.ดร. โสรจ หงศ์ลดารมภ์

ผู้อำนวยการศูนย์จริยธรรมวิทยาศาสตร์และเทคโนโลยี
จุฬาลงกรณ์มหาวิทยาลัย



Research Integrity Thailand
Center for Ethics of Science and Technology

Research Integrity Thailand: Center for Ethics of Science and Technology
Professor Soraj Hongladarom, Chulalongkon University
<https://researchintegritythailand.org/>

บทความแปลจาก Avoiding Being Penalized: Research Misconduct

by admin | February 19, 2019 | บทความ | 0 Comments

โดย โสรัจจ์ หงศ์ลดารมภ์ หน้าทีทางจริยธรรมในการวิจัย ไม่เพียงแต่การมีจริยธรรมในการวิจัยจะช่วยเติมเต็มประเด็นด้านศีลธรรมแล้ว แต่ยังนำไปสู่ผลการวิจัยที่ดีขึ้นเนื่องจากจะทำให้ผู้วิจัยให้ความสำคัญต่อรายละเอียดในการวิจัยมากขึ้น...

คลิกเพื่ออ่าน



6th WORLD CONFERENCE ON RESEARCH INTEGRITY

HONG KONG
2 - 5 JUNE 2019

www.wcri2019.org



Tweets by @WCRI2019



 WCRI 2019 Conference Retweeted 



UCT Research

@UCT_Research

Just announced! @UCT_news will host #WCRI2021!
The World Conferences on Research Integrity foster the exchange of information and discussion about responsible conduct of research. #researchintegrity



UNIVERSITY OF CAPE TOWN
IYUNIVESITHI YASEKAPA • UNIVERSITEIT VAN KAAPSTAD

The University of Cape Town has been chosen to host the 7th World Conference on Research Integrity in 2021



**WORLD CONFERENCES
ON RESEARCH INTEGRITY**



5 Jun 2019

7th World Conference on
Research Integrity in 2021

University of Cape Town
South Africa



Rajanagarindra Building
Hospital for Tropical Diseases
Faculty of Tropical Medicine
Mahidol University
Bangkok



Rajanagarindra Building
Hospital for Tropical Diseases
Faculty of Tropical Medicine
Mahidol University
Bangkok

Additional Resources

European Code of Conduct for Research Integrity (revised May 2017; ALLEA)

https://ec.europa.eu/research/participants/data/ref/h2020/other/hi/h2020-ethics_code-of-conduct_en.pdf

U.S. Office of Research Integrity: <https://ori.hhs.gov>

National Academies of Sciences, Engineering, and Medicine (2017). Fostering Integrity in Research. The National Academies Press, Washington, D.C.: <https://www.nap.edu/catalog/21896>

Seven reasons to Care about Integrity in Research, Science Europe

http://www.scienceeurope.org/wp-content/uploads/2015/06/20150617_SevenReasons_web2_Final.pdf

Scientific Integrity Principles and Best Practices: <https://link.springer.com/article/10.1007/s11948-019-00094-3>

Additional Resources

NIH Ethics Program: <https://ethics.od.nih.gov/>

Council on Publication Ethics: <https://publicationethics.org/resources/flowcharts>

Royal Society and UKRIO Toolkit (2018): <https://royalsociety.org//media/policy/projects/research-culture-images/integrity-in-practice-september-2018.pdf>

Elsevier's support for Transparency and Openness Promotion (TOP) as part of manuscript quality:

<https://www.elsevier.com/connect/elsevier-supports-top-guidelines-in-ongoing-efforts-to-ensure-research-quality-and-transparency>

Wiley's checklist for reviewing manuscripts, which has some detailed guidance on finding flaws:

<https://authorservices.wiley.com/Reviewers/journal-reviewers/how-to-perform-a-peer-review/step-by-step-guide-to-reviewing-a-manuscript.html>

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