Report

Research misconduct by HFSP awardees in Singapore

Monday 4th January, 2021

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1. Outline

1.1. This is a report on research misconduct by Human Frontier Science Program (HFSP) 2018 Program Grant awardee Ajai Vyas at Nanyang Technological University. Research misconduct by other recipients of HFSP funding in Singapore is noted.

1.2. Research misconduct by Ajai Vyas as related to his HFSP grant is summarized in Section 2.

1.3. Research and academic misconduct by Ajai Vyas at Nanyang Technological University is described in Section 3.

1.4. Content of correspondence with editorial boards of journals raising notable irregularities in methods used by Ajai Vyas is in Section 4.

1.5. Section 5. is a brief on research misconduct by the Singapore 'dementia consortium' in which Ajai Vyas plays a leading role, and in publications associated with HFSP.

1.6. Queries on work produced in Singapore by other HFSP awardees is noted in Section 6.

1.7. Conflict of interest disclosure by the author is in Section 7.

2. Research misconduct by HFSP awardee Ajai Vyas

2.1. HFSP Grant 'Disentangling trophic and sexual transmission dynamics in a ubiquitous parasite'

2.1.1. Ajai Vyas at the School of Biological Sciences, Nanyang Technological University, Singapore, and Ryan O'Handley at the Department of Pathobiology, Infectious Disease and Public Health, School of Animal and Veterinary Sciences, Roseworthy, Australia were awarded an HFSP Program Grant in 2018, titled 'Disentangling trophic and sexual transmission dynamics in a ubiquitous parasite' (Vyas and O'Handley, 2021).

2.1.2. The grant aims to "…test if Toxoplasma increases predation of rats by cats…[in] Kangaroo Island in Australia…" utilizing a "…golden opportunity…" afforded by "…plans to fence off one of its parts and exterminate all cats from there…" (Vyas and O'Handley, 2021). To the best of my understanding, the grant also aims to test if decreased cat population will exert a selection pressure on *Toxoplasma gondii*, associated with a shift in manipulation of host behavior characterized by decreased loss of fear and increased sexual activity and attractiveness of infected male rats and mice.

2.2. Apparent outcome of the HFSP Grant to Ajai Vyas

2.2.1. A search in Google Scholar with the term "Human Frontier Science Program RGP0062/2018" produced four hits; three articles and one review article listed below.

2.2.2. The article 'Testosterone acts within the medial amygdala of rats to reduce innate fear to predator odor akin to the effects of *Toxoplasma gondii* infection' in which funding is given as "…This work was financially supported by Human Frontier Science Program (grant RGP0062/2018)…" (Singh et al., 2020).

2.2.3. The article 'Medial amygdala arginine vasopressin neurons regulate innate aversion to cat odors in male mice' in which funding is given as "…This work was financially supported by the Ministry of Education, Singapore (grant RG136/15) and Human Frontier Science Program (grant RGP0062/2018)…" (Tong et al., 2020).

2.2.4. The article 'Urolithin-A attenuates neurotoxoplasmosis and alters innate response towards predator odor' in which funding is given as "…This work was financially supported by Human Frontier Science Program (RGP0062/2018) and by the Ministry of Education, Singapore, under its MOE AcRF Tier 3 Award MOE2017-T3-1-002…" (Tan et al., 2020).

2.2.5. The review article 'Why behavioral neuroscience still needs diversity?: A curious case of a persistent need' in which funding includes "…Vyas via Human Frontier Science Program (RGP0062/2018) and ST via a Presidential Postdoctoral Fellowship from Nanyang Technological University (NTU) M408080000…" (Mathuru et al., 2020).

2.3. Research misconduct in apparent outcome of HFSP Grant to Ajai Vyas

2.3.1. Research misconduct in both the articles Singh et al. (2020) and Tong et al. (2020) is described in sections 3. and 4. Scientific and ethical irregularities are described in section 3. and correspondence initiated with the relevant editorial boards to correct the scientific record is outlined in section 4. Briefly, Vyas and others report investigating neurobiology using impossibly dissolved drug solutions, and impossible generation and application of genetically modified organisms. In addition to putative misrepresentation, falsification, and fabrication, Vyas and others attribute genetic constructs used in the experiments unethically.

2.3.2. Scientific validity and putative misconduct of the article Tan et al. (2020) and the review article Mathuru et al. (2020) are described in section 3.

2.3.3. Tong et al. (2020) is not open access in contradiction to HFSP Open Access Statement.

2.4. Comment on HFSP Grant to Ajai Vyas

2.4.1. From 7th April 2020 and until 4th December 2020 I worked at Nanyang Technological University under the supervision of Assistant Professor Rupshi Mitra.

2.4.2. I understood from Rupshi Mitra that her plans to study *Toxoplasma* transmission in Kangaroo Island were interrupted by COVID-19.[1]

2.4.3. The research relies on a "…golden opportunity…" (Vyas and O'Handley, 2021) afforded by fencing and eradication plans ongoing at Dudley Peninsula 2019 – 2023 (Landscape_SA, 2021). Importantly, to assess any loss of predator fear in infected rodents on Dudley Peninsula, and to measure a putative shift of transmission of *Toxoplasma gondii* from increased predation of infected rodents to increased sexual activity and attractiveness of infected rodents will be most robustly shown with greatest decrease in the local cat population. It is expected that a plunge in the local cat population will occur in the initial stages of eradication. As the eradication process has presumably started, the "…perfect opportunity…" (Vyas and O'Handley, 2021) to meaningfully test the hypotheses stated in the Grant is in jeopardy.

2.5. Research misconduct by Ajai Vyas and Rupshi Mitra at Nanyang Technological University

2.5.1. Research misconduct in published articles by Rupshi Mitra was reported to Nanyang Technological University Office of Human Resources, Legal and Secretarial Office, and Research Integrity office on 11th September 2020.

2.5.2. Widespread and systemic misconduct in research and academic activity by Ajai Vyas and Rupshi Mitra at Nanyang Technological University was reported to the University Leadership, Office of Human Resources, Legal and Secretarial Office, and Research Integrity office on 26th November 2020.

2.5.3. Research misconduct by Ajai Vyas and Rupshi Mitra at Nanyang Technological University is discussed in sections 3. and 4. below.

2.5.4. Research misconduct by Ajai Vyas and Rupshi Mitra in the context of the Singapore 'dementia consortium' is in section 5. below.

[1] Ajai Vyas is the spouse of Rupshi Mitra.

3. Research and academic misconduct at Nanyang Technological University by Ajai Vyas

I analyzed all articles, reviews, doctoral theses, and bachelor degree projects produced by Ajai Vyas and Rupshi Mitra at Nanyang Technological University, and one Nanyang Technological University Institutional Animal Care and Use Committee Animal Use Protocol. A summary of this analysis and as related to HFSP awardee Vyas is presented here. It is occasionally not possible to dissociate some misconduct activity by Vyas from that propagated by Mitra, for example because animals and putative datasets are probably shared between the labs. Where possible, only data relevant to misconduct propagated by Vyas is below. Vyas and Mitra have been receiving grants, producing extremely substandard work rife with indisputable scientific evidence of misconduct, duplicating this substandard work in articles published in indexed and non-indexed scientific journals and doctoral theses, obfuscating this substandard work in scientific terminology and incommensurate statistics, misreporting or forging administrative details such as animal use protocol, grant details, and metadata in the NTU data repository (DR-NTU), and subverting efforts towards quality education and research in Singapore by demoralizing bachelor degree students. Please contact me if you wish to read the full report.

3.1. Duplication of work by Ajai Vyas and Rupshi Mitr

3.1.1. Duplicated work by Vyas and Mitra is collated in Table 1.

3.1.2. Evidence suggests that Vyas' and Mitra's published work produced at Nanyang Technological University is *the same experiment or project,* one for each. There is no research question and the title of the project is secondary. This is apparent from analysis of significant outcome of studies. The bigger picture is one of a systemic misconduct, and which has been propagated over a period of time by Vyas and Mitra.

3.1.3. Obfuscation is used by Vyas and Mitra to duplicate articles as follows.

3.1.4. *Convoluted language*: this consists of calling the same thing, such as a protein, method, or paradigm, something different in different publications. This is highly unusual since accurate terminology is essential for scientific communication. Where terminology is disputed or variations are still found in present-day literature, investigators are invariably careful to be consistent in how a scientific term is used so as to establish coherence within their laboratory, field, and across their publications. Vyas and Mitra deliberately use different terms in reference to the same scientific parameter, use obsolete terms, and employ other methods of obfuscation so as to dissociate duplicate publications from one another.

3.1.5. *Incommensurate statistics*: systemic, complex, and unusual use and reporting of statistics by Vyas and Mitra. A large proportion or majority of publications produced by Vyas and Mitra use one or another form of 'planned comparisons' while simultaneously report several batches of animals for an experiment or study. While use of planned comparisons is itself unusual as a statistical method of choice for the field of investigations, use of planned comparisons as reported by Vyas and Mitra and in the context of multiple experiments within the same study is not compatible.

3.1.6. *A 'two-by-two' design*: commonly used by some authors, except Vyas and Mitra separate data from the same set of experiments into duplicate articles. These are characterized by 'reversals' as further discussed in section 3.9.

3.1.7. *Data segregation*: data of control animals is segregated, reported it as a study, or mixed-and-matched with other data to generate a 'novel' study.

3.1.8. *Combination of obfuscation methods*: for example, the same test can be interpreted differently in another article with altered statistical manipulation, or a control group from a 'two-by-two' study is compared against a theoretical or 'expected' statistical manipulation in another study, or a control group from a 'two-by-two- study is compared against a theoretical or 'expected' statistical extrapolation from another study.

3.2. Unethical animal experiments by Ajai Vyas and Rupshi Mitra

3.2.1. Euthanasia procedures reported in articles by Vyas and Mitra are listed in Tables 1. and 2. These are irregular in reporting, method, and justification for use.

3.2.2. I could not find any scientific justification for physical methods of euthanasia without anesthesia related to work by Vyas and Mitra. A confounding effect of anesthesia on gene expression is not a valid reason as no specific measurements of gene expression are mentioned, and there is no contraindication to chemical methods of euthanasia in studies of gene expression with predator odor exposure (Ivy et al., 2020; Wang et al., 2018b). Injectable anesthetics can be used in such a way that the animal is not exposed to any odor, and some are odorless.

3.2.3. To the best of my knowledge, when it is necessary to accurately measure gene expression in brain after euthanasia additional care and attention must be given to standardize procedures (Ko et al., 2019; Overmyer et al., 2015; Staib-Lasarzik et al., 2014).

3.2.4. No scientific reason why anesthesia should not be used for euthanasia by Vyas and Mitra. Indeed, for work by Mitra which is about stress, there are overwhelming reasons *not* to kill animals without anesthesia, and not to kill animals using any form of restraint. This is very well-known (Sabban and Kvetňanský, 2001).

3.2.5. From the evidence presented, it can be seen that euthanasia procedures in experiments by Vyas and Mitra at Nanyang Technological University were not reported, poorly reported, or not aligned with best practice, basic physiology, animal ethics, and researcher well-being;

3.2.6. Further evidence that Vyas and Mitra do not use animals in a set project or parallel sets of projects presented below.

3.2.7. From articles such as Abdulai-Saiku and Vyas (2017) and Abdulai-Saiku et al. (2017), and from work in bachelor degree projects supervised by Vyas and Mitra, it appears animals and methods from one paradigm and lab are bizarrely complemented with that of the other.

3.2.8. Vyas used the same or at most 2 Animal Use Protocol(s) for 3 or 4 different studies from 2011 to 2015.

3.2.9. It appears animals and/or putative datasets are used interchangeably between the Vyas and Mitra labs.

3.3. Methods in publications by Vyas

3.3.1. Vyas uses a ‘template’ of methods in work produced at Nanyang Technological University, summarized in Schema 1.

3.3.2. Notable irregularities in methods reported by Ajai Vyas in articles, and reproduced and repeated across articles and theses include: (i) impossible dilution of drugs for infusion into brain such as testosterone; (ii) reporting infusion of drugs into brain at huge concentrations probably lethal to the animal; (iii) impossible use of a Cre-dependent mouse model; (iv) nonsensical use of genetic methods in animal models and unethical reporting of genetic constructs gifted by others; (v) inconsistent model validity, first asserting a model cannot be replicated in mice then effectively replicating it in mice; and (vi) other methodological inconsistencies.

3.4. Doctoral supervision by Vyas

3.4.1. Analyzing doctoral theses supervised by Vyas, where accessible, highlights: (i) misattribution of work done in articles published before or after a thesis is produced; (ii) terminological and statistical obfuscation techniques practiced by Vyas; (iii) discrepancies between work done and work reported; and (iv) scientific errors reproduced by Vyas verbatim across publications. Outcome of theses is collated in Table 3.

3.4.2. All theses show substandard quality in scientific content and academic rigor not commensurate with university standards and one in particular stands out (Singh 2018).

Table 1. Duplicate article outcome and interpretation. Legend on page 11.				
***cf.* Articles**		**Significant outcome difference(s)**	**Article interpretation**	**Euthanasia**
#	**Article to compare against**	**Total outcome**	**Article interpretation**	**Euthanasia**
1	(Koe et al., 2016)	3 x anxiety (behavior) Plasticity Corticosterone (ELISA)	EE in adulthood reversed separation stress-induced anxiety and plasticity	Decapitation
#	**Articles compared**	**Additional outcome(s)**	**Article interpretation**	**Euthanasia**
2	(Ashokan et al., 2016)	+2 anxiety (behavior) + BDNF mRNA PCR	EE in adulthood reversed immobilization stress-induced anxiety and plasticity	Decapitation
3	(Hegde et al., 2017)	+ 1 anxiety (behavior)	Plasticity correlated with predator stress-induced anxiety and corticosterone release	Decapitation
4	(Abdulai-Saiku et al., 2017)	+ 1 anxiety (behavior)	Non-experimental stress of noise reversed predator stress-induced anxiety (♀) and separation stress-induced anxiety (♂)	Decapitation
5	(Abdulai-Saiku and Vyas, 2017)	+1 anxiety (behavior)	Predator stress was not reversed by removal of ♀ hormones	Sacrifice
6	(Singh et al., 2020)	+1 anxiety (behavior)	Predator stress was reversed by ♂ hormone supplementation	Decapitation
7	(Tan et al., 2015)	+2 appetitive (behavior) + neurotransmitter (HPLC)	Predator stress decreased appetitive motivation and altered plasticity and neurotransmitter release.	Decapitation
8	(Tan and Vyas, 2016a)	+1 appetitive (behavior)	Predator stress decreased appetitive motivation	Unreported
9	Tran and Vyas (2016b)	+1 appetitive (behavior)	Predator stress decreased appetitive motivation	Unreported
10	(Ashokan et al., 2018a)	+1 anxiety (behavior) + GR and MR mRNA PCR + neurogenesis (IHC)	EE in adulthood reversed immobilization stress-induced depression and plasticity	Decapitation
11	(Ashokan et al., 2018b)	nil	EE in adulthood was correlated with plasticity	Unreported
12	(Bhaskar et al., 2018)	+1 memory (behavior)	Deep brain stimulation plus EE decreased anxiety in unstressed adults	Unreported
13	(Hegde et al., 2020)	+1 anxiety (behavior) + GR IHC + BDNF IHC and WB	EE in early-life reversed separation stress-induced anxiety and plasticity	Decapitation
14	(Liu et al., 2015)	+ 2 memory (behavior) + neurogenesis (IHC and PCR)	Deep brain stimulation potentiates memory and neurogenesis	Decapitated with isoflurane anesthesia (sic)
15	(Hari Dass and Vyas, 2014b)	+ AVP (promoter, IHC, mRNA PCR)	T. gondii increases AVP	Deeply anesthetized and perfused
16	(Lee et al., 2020)	+ BrdU	Neurogenesis increased in female rats after separation stress	Decapitation

cf. Articles		Significant outcome difference(s)	Article interpretation	Euthanasia
#	**Article to compare against**	**Total outcome**	**Article interpretation**	**Euthanasia**
14	(Liu et al., 2015)	2 x memory (behavior) Plasticity Neurogenesis (IHC) Neurogenesis (PCR) Neurotransmitter (HPLC)	Deep brain stimulation potentiates memory and neurogenesis	Decapitated with isoflurane anesthesia (sic)
#	**Articles compared**	**Additional outcome(s)**	**Article interpretation**	**Euthanasia**
12	(Bhaskar et al., 2018)	+2 anxiety (behavior)	Deep brain stimulation plus EE decreased anxiety in unstressed adults	Unreported
10	(Ashokan et al., 2018a)	+1 anxiety (behavior) GR and MR (PCR)	EE in adulthood reversed immobilization stress-induced depression and plasticity	Decapitation
11	(Ashokan et al., 2018b)	nil	EE in adulthood was correlated with plasticity	Unreported
3	(Hegde et al., 2017)	+2 anxiety (behavior) Corticosterone (ELISA)	Plasticity correlated with predator stress-induced anxiety and corticosterone release	Decapitation
cf. Articles		**Significant outcome difference(s)**	**Article interpretation**	**Euthanasia**
#	**Article to compare against**	**Total outcome**	**Article interpretation**	**Euthanasia**
7	(Tan et al., 2015)	2 x appetitive (behavior) Neurotransmitter (HPLC) Plasticity	Predator stress decreased appetitive motivation and altered plasticity and neurotransmitter release.	Decapitation
#	**Articles compared**	**Additional outcome(s)**	**Article interpretation**	**Euthanasia**
4	(Abdulai-Saiku et al., 2017)	+2 anxiety (behavior)	Non-experimental stress of noise reversed predator stress-induced anxiety (♀) and separation stress-induced anxiety (♂)	Decapitation
5	(Abdulai-Saiku and Vyas, 2017)	+1 anxiety (behavior)	Predator stress not reversed by removal of ♀ hormones	Sacrifice
6	(Singh et al., 2020)	+2 anxiety (behavior)	Predator stress reversed by ♂ hormone supplementation	Decapitation
8	(Tan and Vyas, 2016a)	+1 appetitive (behavior)	Predator stress decreased appetitive motivation	Unreported
9	Tan and Vyas (2016b)	+1 appetitive (behavior)	Predator stress decreased appetitive motivation	Unreported

Table 1. Duplicate article outcome and interpretation in work by Vyas and Mitra produced at Nanyang Technological University.

i. A number of articles by Vyas and Mitra are compared against each other. Under *Total outcome* of the *Article to compare against*, significant outcomes reported in the article are summarized. The *Articles compared* list any additional significant outcome in the *Article compared* on top of the *Article to compare against*.

ii. Significance is important here because both Vyas and Mitra report a method but not its result, a result but not its method, or a method and its insignificant result in one article but that is significant in another analogous article.

iii. In the blue section of Table 1. a total of 16 articles by Vyas and Mitra are compared against the article by Mitra, Koe et al. 2016.

iv. The green and red sections of Table 1. compare articles by Vyas and/or Mitra.

v. Table 1. shows that with surprisingly little additional outcomes, a large number and broad variety of 'reversed' conclusions can be reached.

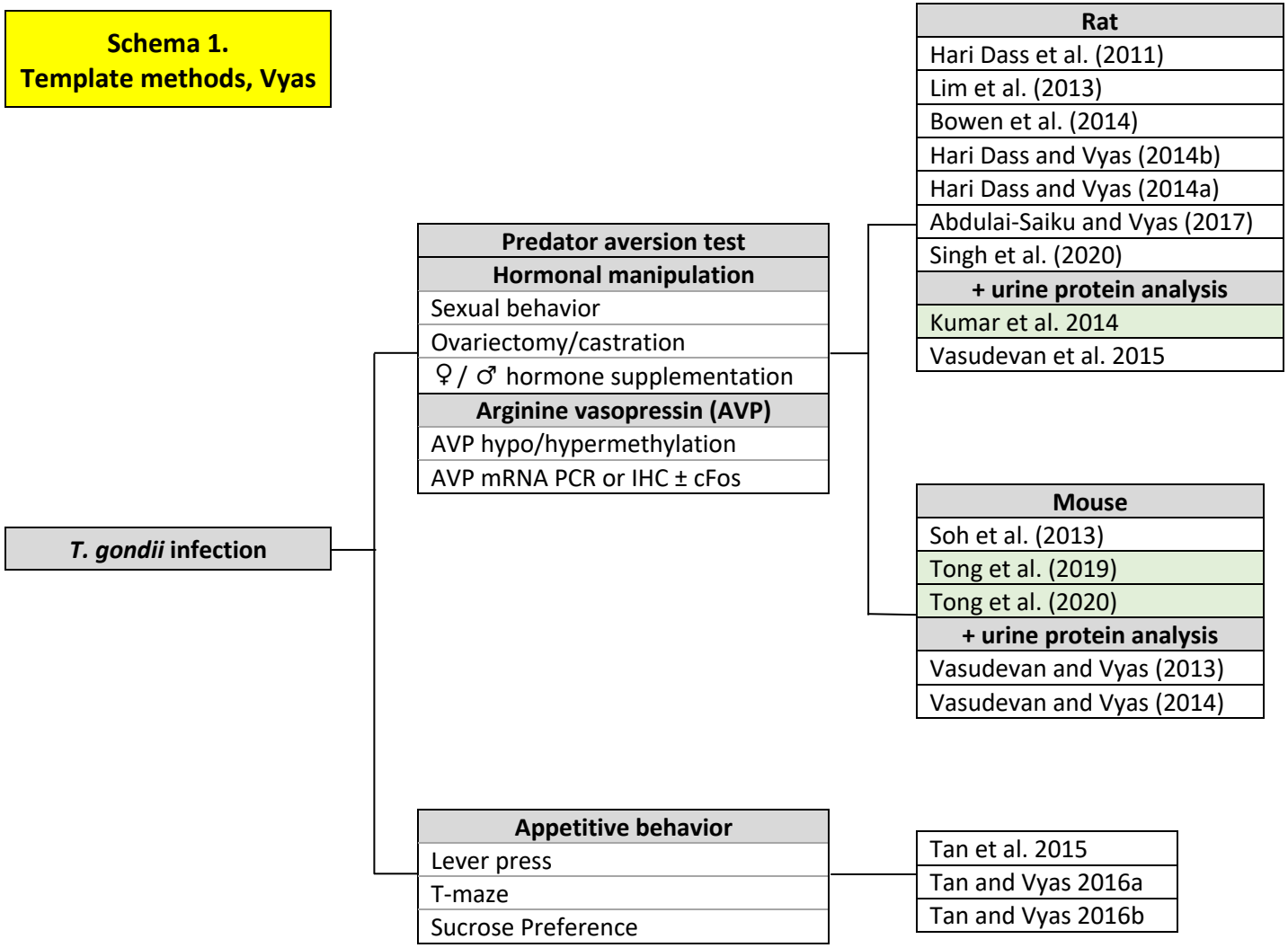
vi. Table 1. is not exhaustive; for example it does not include duplicated articles by Vyas essentially replicating results from rats but in mice.

Abbreviations, EE: environmental enrichment; ELISA: enzyme-linked immunosorbent assay; GR: glucocorticoid receptor (putatively nuclear); HPLC: high performance liquid chromatography; IHC: immunohistochemistry; MR: mineralocorticoid receptor; mRNA: messenger ribonucleic acid assay; PCR: polymerase chain reaction assay.

Table 2. Euthanasia and Animal Use Protocol in publications by Vyas and Mitra				
Article by Vyas	**Where produced**	**AUP**	**Funding**	**Euthanasia**
(Hari Dass et al., 2011)	NTU; Stanford University	ARF SBS/NIE- A0106AZ APLAC#11603	Nanyang Assistant Professorship program Stanley Medical Research Inst. & NIH USA AI41014	Unreported
(Lim et al., 2013)	NTU	Unreported	NTU, MoE	Unreported
(Soh et al., 2013)	NTU	Unreported	NTU, MoE	Unreported
(Vasudevan and Vyas, 2013)	NTU	ARF SBS/NIE-A-0106AZ	NTU and MoE 2011-T2-2-111	Unreported
(Vasudevan and Vyas, 2014)	NTU	ARF SBS/NIE-A-0106AZ	MoE 2011-T2-2-111 to. Vyas	
(Vasudevan et al., 2015)	Unreported	Unreported	MoE to Vyas and NRF to JYY	Unreported
(Hari Dass and Vyas, 2014b)	NTU	Unreported	NTU, MoE	Deeply anesthetized (?) perfused
(Hari Dass and Vyas, 2014a)	NTU	Unreported	NTU, MoE	Deeply anesthetized (?) perfused
(Kumar et al., 2014)	NTU? NUS? Southwestern Uni.	Unreported	MoE to Vyas Mellon awards to MZF and FAG	Isoflurane and perfusion
(Abdulai-Saiku and Vyas, 2017)	Unreported	Unreported	MoE grant RG136/15	Unreported
(Tan et al., 2015)	NTU	Unreported	MoE and Duke-NUS block funding	Decapitation
(Tan and Vyas, 2016b)	NTU	Unreported	MoE grant RG52/14	Unreported
(Tan and Vyas, 2016a)	NTU	Unreported	MoE grant RG52/14	Unreported
(Liu et al., 2015)	NTU	ARF-SBS/NIE-A 0169 AZ	Lee Kuan Yew Fellowship M4080846.080 to LWL	Decapitated with isoflurane (sic)
(Tong et al., 2019)	NTU	Unreported	MoE RG136/15	Restrained and sacrificed
(Tong et al., 2020)	NTU	Unreported	Human Frontier Science Program RGP0062/2018	Terminal dissection
(Singh et al., 2020)	Unreported	Unreported	Human Frontier Science Program RGP0062/2018	Perfusion
Thesis supervised by Vyas	**Where produced**	**AUP**	**Funding**	**Euthanasia**
(Hari Dass, 2014)	NTU	Unreported	SBS, NTU, MoE	Unreported / deeply anesthetized (?) perfused
(Vasudevan, 2016)	NTU	ARF SBS/NIE-A-0106AZ	Unreported	Unreported
(Singh, 2017)	NTU	Unreported	SBS, NTU	Unreported
Articles by Mitra	**Where produced**	**AUP**	**Funding**	**Euthanasia**
All articles	NTU	IACUC: A-0195 in *Hegde et al. 2017*	Summarized in Schema x., page x.	Decapitation or unreported, summarized in Table x., page x.

Table 2. Euthanasia and Nanyang Technological University (NTU) Institutional Animal Care and Use Committee (IACUC) Animal Use Protocol (AUP). Summary of location of production, AUP, funding source, and euthanasia methods in publications by Vyas and Mitra produced at Nanyang Technological University. *Abbreviations,* ARF: Animal Research Facility; MoE: Ministry of Education, Singapore; NUS: National University of Singapore; SBS: School of Biological Sciences.

Schema 1.
Template methods, Vyas



Schema 2. Template methods, Vyas

Articles published by Vyas from NTU are produced from templates methods in Schema 1. and shaded in grey. The same methods are used in rats or mice, with or without analysis or urinary protein. Articles shaded in green do not report *T. gondii* infection.

Some articles contain data from Stanford or Sydney detailed, and the article Tan et al. 2020 is not included in Schema 1.

Abbreviations, AVP: arginine vasopressin; IHC: immunohisto-chemistry; mRNA: messenger ribonucleic acid assay; PCR:

Table 3. Three doctoral theses supervised by Vyas	
Method used in thesis	**Outcomes**
T. gondii + predator odor exposure	Infection decreased aversion
Castration	Infection associated with aversion
Castration + testosterone intra-MEApd	Infection decreased aversion
LH receptor mRNA in testes	Infection increased expression
Serum testosterone?	Increased with infection
Testes testosterone?	Increased with infection
Sexual activity / mounting	Increased with infection of ♂
♀ preference to male urine	Increased with infection of ♂
MEApd AVP/cFos	Infection increased expression
MEApd AVP mRNA	Infection increased expression
♂ MEApd AVP/cFos + estrus odor exposure	Estrus odor exposure increased immunoreactivity
AVP promotor methylation in MEApd PCR	Infection decreased methylation
AVP overexpression with intra-MEApd AAV	Decreased aversion in uninfected animals
Hypermethylation with methionine s.c.	Reversed aversion in infected animals
	Decreased LH receptor mRNA in testes of infected animals
Hypothmethylation with intra-MEApd RG108	Increased aversion in uninfected animals
	Increased LH receptor mRNA in testes of uninfected animals
MUP in ♂ urine	Infection increased expression
High vs. low Mw MUP in ♂urine	High Mw is more attractive to ♀
Visualization of *T. gondii* cysts	Positive in epididymis, vagina, brain
PVN AVP mRNA	No significance
Open field test	No significance
AVP promoter methylation PCR MEApd	No significance in castrated and infected animals
Testosterone and pregnenolone in testes, ELISA	No significance

Table 3. Doctoral theses supervised by Vyas. Methods used and outcome reported in three theses supervised by Vyas is summarized. The same experiment in more than one thesis is shaded in blue. Information unique to Hari Dass (2014) is shaded in red, Vasudevan (2016) shaded in orange, and Singh (2017) shaded in green.
Abbreviations, AAV: adeno-associated virus; AVP: arginine vasopressin; LH: luteinizing hormone: LH; MUP: major urinary protein; MEApd: posterior dorsal division of medial amygdala; PVN: paraventricular nucleus; s.c.: subcutaneous injection.

Key for thesis data
Same experiment in 2 or 3 theses
Unique to (Hari Dass, 2014)
Unique to (Vasudevan, 2016)
Unique to (Singh, 2017)

3.5. Vyas' experimental paradigm

3.5.1. The experimental paradigm used by Vyas is based on infecting rodents with the protozoan *Toxoplasma gondii* (*T. gondii*).

3.5.2. Normally rodents are averse to the odor of cat, cat urine, and cat feces, as would be expected from an evolutionary perspective. *T. gondii* infection of rodents is of interest in neuroscience because it has been shown to, some degree or another, change infected rodents' response to predator urine and feces and other stimuli (Berdoy et al., 2000; Hay et al., 1983)

3.5.3. In Vyas' terms, *T. gondii reverses* innate fear, though obviously, outside a circle of authors including Vyas and Flegr, reality is probably more sophisticated than that, as discussed below.

3.6. Validity of Vyas' developed model and as related to HFSP Grant

3.6.1. Errors, misrepresentation, or falsification in Vyas' methods, notable examples of which are discussed here, in addition to other queries regarding his work, render any study reported by Vyas and its interpretation suspect.

3.6.2. When infected with *T. gondii*, a proportion of male rats show attraction to, rather than avoidance of, cat urine – the exact or roughly approximate proportion is obfuscated and contradictory between Vyas's studies. While Vyas did not report this translucently in controlled laboratory work, the HFSP grant he received aimed, in part, to address this query.

3.6.3. A conspicuous contradiction is in articles produced by Vyas in which mice are used. In (Vyas et al., 2007) "…uninfected mice exhibited a marked aversion to bobcat urine…". These experiments were at Stanford on female BALB/c mice. In (Soh et al., 2013), Vyas asserts that "…Infection with *Toxoplasma gondii* does not elicit predator aversion in male mice nor increase their attractiveness in terms of mate choice…". These were male and female "…Swiss Albino and BALB/c mice…" (*sic*). So that there is no doubt, Vyas writes: "…we show that *T. gondii* does not result in behavioral manipulation in male mice. The infection even leads to reduction in attractiveness and increase in innate fear in one of two strains investigated…" and "…In summary, we show that *T. gondii* infection does not lead to clear manipulation of host behavior in male mice. The infection results in behavioral change in one of the strain studied, albeit in a direction opposite to that predicted by behavioral manipulation hypothesis…". And then in Tong et al. (2019) and Tong et al. (2020), results Vyas obtained in rats are produced in mice only without *T. gondii* infection. In Tong et al. (2019) C57BL/6 mice were used, and in Tong et al. (2020) transgenic mice were used discussed in this report.

3.6.4. In Soh et al. (2013) we are informed in no uncertain terms: "…Similarity of physiological substrates and ability of the parasite to alter mate choice in rats suggest that *T. gondii* will similarly alter mate choice in male mice. Data in this report disagree with this assumption. While infection does not cause significant change in BALB/c, it even leads to a significant reduction in sexual attractiveness of males in Swiss Albino strain….". And to be completely certain, Vyas also writes in Soh et al. (2013): "…increased testosterone plays an important part in reduction of fear after infection in rats. In contrast to rats, *T. gondii* infection reduces testosterone in male mice (Kankova et al. 2011). It is possible that increase in innate fear relates to lower testosterone after infection in this species….". In other words, the mechanism by which *T. gondii* infection manipulates rat behavior is specific to rats and does not apply to mice. This is in line with what Vyas writes in (Vyas and Sapolsky, 2010), that these parasite-induced behavioral changes are very specific, and that the underlying testosterone-dependent mechanism may be fundamentally different between rats and mice, indeed opposite. So what was the objective of replicating the rat studies in mice? If mice do not respond to *T. gondii* the same way as rats, why embark on such a study when Vyas is certain that it is not feasible?

3.6.5. Why did Vyas want to collect mice on Kangaroo Island under the HFSP Grant he received?

3.7. Choice of animals

3.7.1. I do not understand the choice of strains of mice in Soh et al. (2013). BALB/c is immunodeficient and perhaps useful for studying the immune response, but for behavior I am not certain it is the strain of choice. Perhaps the intention was initially to confirm data obtained from Stanford (Vyas et al. 2007), which was then confirmed (in the negative) in Soh et al. (2013), and subsequently dismissed for Tong et al. (2019) and Tong et al. (2020)?

3.7.2. Similarly, the choice of "…Swiss Albino…" mice is puzzling, particularly in light of statements made by Vyas in Soh et al. (2013) such as: "…A rather frustrating roadblock in this host–parasite model is relative unease of molecular manipulations in rats. In contrast, methods to manipulate gene expression and genetic background are well developed in mice. For example, it is possible to generate transgenic mouse containing reporter molecules that allows precise tracking of parasite movement at cellular resolution…" (Soh et al. 2013). So why not use C57BL/6 to facilitate overcoming this "…rather frustrating roadblock…" and towards 'easing' molecular manipulations, for example, to allow "…precise tracking of parasite movement at cellular resolution…"? If Vyas thought C57BL/6 is inappropriate for these purposes, then surely "…Swiss Albino…" mice are among the least desirable options in 2013? These mice are not mentioned in the relevant doctoral thesis (Vasudevan, 2016).

3.8. Other queries regarding Vyas' experimental work

3.8.1. In Hari Dass and Vyas (2014b): "…Standard operating procedures were used for stereotaxic intracranial surgery. During the surgery, animals were anaesthetized using a ketamine (90 mg/kg body weight) and xylazine (10 mg/kg) cocktail with maintenance of anesthesia using 2–3% isoflurane…". Similarly in Hari Dass (2014) page 110 and Vasudevan (2016) page 23. Mixing inhaled and injectable anesthetics sounds like a risky approach. If isoflurane was available, why was it not used for induction? If a loading dose of xylazine + ketamine was administered, why was anesthesia not maintained with the same?

3.8.2. Vyas first avoids surgery "…because of the concern that immunological upheaval during intracranial surgery would initiate recrudescence of cystic Toxoplasma gondii in the brain…" (Hari Dass and Vyas, 2014b), and then proceeds to infuse RG108 or testosterone into brain with intracranial surgery (both at mammoth doses and impossible concentrations). Is 'recrudescence' a concern or not? What was done to make sure recrudescence did not occur? Were animals discarded because of recrudescence?

3.9. Interpretation of Vyas' work

3.9.1. *Interpretation 1*: Female rats are more attracted to infected male rats and their urine because infected male rats produce more testosterone. Concentration of urinary proteins attractive to female rats is increased with infection. These changes are perhaps induced in infected male rats because arginine vasopressin (AVP) expression in medial amygdala neurons is upregulated through hypomethylation of its promoter.

3.9.2. *Interpretation 2*: *T. gondii* infection in male rats increases their threshold for taking part in activities that end with, or are 'rewarded' with, a sugar treat. This is associated with decreased dopamine and spine density in nucleus accumbens and no-where else in brain, and no change in brain serotonin.

3.9.3. An apparent ideal goal of the majority of Vyas's studies is to 'reverse' a physiological or behavioral feature. Therefore, with the application of a template method, the experimental (infected) group is 'reversed' to show the phenotype of control (uninfected) animals, or conversely the control group is 'reversed' to show the phenotype of infected animals as follows.

3.9.4. Castration reversed *loss* of innate fear in infected male rats (Lim et al., 2013). Testosterone supplementation to the posterior dorsal division of medial amygdala (MEApd) in castrated

animals reverses the reversed loss of innate fear in infected animals – in other words, restores *loss* of innate fear in infected male rats (Singh et al., 2020).

3.9.5. Hypermethylation of the AVP promoter in medial amygdala reversed *loss* of innate fear in infected male rats while hypomethylation reversed innate fear in uninfected male rats (Hari Dass and Vyas, 2014b).

3.9.6. Infection in male rats is usually unattractive to female rats (Kumar et al., 2014), but infection with *T. gondii* reversed sexual unattractiveness of infected male rats (Hari Dass et al., 2011).

3.10. Article duplication by Vyas

3.10.1. The following are probably duplicated articles from single studies by Vyas, see Schema 1. and Table 1.

3.10.2. *Study 1*: Hari Dass et al. (2011), House et al. (2011), Lim et al. (2013), Vasudevan and Vyas (2013), (Bowen et al., 2014), Hari Dass and Vyas (2014a), Hari Dass and Vyas (2014b), Kumar et al. (2014), Vasudevan and Vyas (2014), Vasudevan et al. (2015), Abdulai-Saiku and Vyas (2017), Singh et al. (2020). These experiments putatively investigated the relationship between sexual behavior, arginine vasopressin with (experimental animal group) or without (control animal group) *T. gondii* infection in rats.

3.10.3. *Study 2*: Soh et al. (2013), Tong et al. (2019), Tong et al. (2020). These are analogous to articles in *Study 1* above but in mice and with self-contradictory results.

3.10.4. *Study 3*: Tan et al. (2015), Tan and Vyas (2016a), Tan and Vyas (2016b.) These duplicated articles putatively investigated appetitive behavior in rats, other than sexual, when infected with *T. gondii.*

3.10.5. Other articles produced by Vyas are: (i) Abdulai-Saiku et al. (2017a) on which Mitra is co-author a is supposedly about stress, and the experiments are in the thesis supervised by Vyas (Abdulai-Saiku, 2017); (ii) Tan et al. (2020) which is about a putative role of pomegranate extract in the treatment of *T. gondii*.

3.11. Comments on Vyas' work by others

3.11.1. The review by (Doherty, 2020) refers to work by Vyas and others. The review compiles evidence showing that physiological mechanisms and ecological models categorically stated in work by Vyas lack perspective. As to terminology, Doherty is highly critical of the use of imprecise and misleading language to misrepresent biological phenomena and for marketing purposes.

3.11.2. A succinct review by (Worth et al., 2013) highlights inconsistencies in work by Vyas, Flegr, and others.

3.12. Prediction

Where is the oxytocin data in the doctoral thesis supervised by Vyas, Abdulai-Saiku (2017)? Why was only *negative data* reported in the article published from the thesis, Abdulai-Saiku and Vyas (2017)? Since the positive data is in the thesis, why was it not included in the article, or in another article since?

3.13. Academic misconduct by Vyas at Nanyang Technological University

3.13.1. FYPs supervised by Vyas can be categorized as: (i) FYPs where no practical work was done; (ii) FYPs where practical work may or may not have been done. Any experimental methods, results, and their interpretation are obfuscated or misrepresented; (iii) FYPs where practical work was done; the majority of these FYPs emphasize the insignificance of the data; (iv) FYPs not actually supervised by Vyas and otherwise unrelated to Vyas.

3.13.2. Nanyang Technological University data repository (DR-NTU) metadata of FYPs supervised by Vyas shows irregularities and in a manner indicating systemic obfuscation.

3.13.3. While some FYP students were favored with co-authorship or allowed to generate text with no experimental work or obfuscated work, other students were clearly disfavored. These disfavored students express in the text of their FYPs their confusion as to the objective and methods of the work, and frustration at the purported invalidity and insignificance of their work. The evidence suggests that potentially outstanding students have been demoralized by Vyas's supervision, in particular those who produced data in Vyas' lab challenging the validity of his work.

3.13.4. Resistance to dishonest reporting shown in many FYPs is admirable, and outstanding students produced FYPs with sophisticated scientific communication despite insignificance.

4. Excerpts of correspondence sent to editorial boards regarding articles published by Ajai Vyas[2] [REDACTED, CONTENT IS UNDER INVESTIGATION ELSEWHERE]

4.1. Tong et al. (2020)

[redacted]

4.1.6. [redacted]

4.2. Singh et al. (2020)

[redacted]

4.2.3. [redacted]

[2] Other than my reports on bullying and misconduct to Nanyang Technological University (the investigation status of which is unknown, so I do not know if Vyas and Mitra read the report), I am unable to discuss the points mentioned in these correspondences with any co-author: I was prohibited by Nanyang Technological University from communicating with any present or past staff member of the university, student, and alumni under threat of prosecution in the same letter that my employment there was terminated under the 'no reason' clause.

[redacted]

4.2.5. [redacted]

4.3. Hari Dass et al. (2014)

[redacted]

4.3.4. [redacted]

4.4. Lim et al. (2013)

[redacted]

4.4.4. [redacted]

5. HFSP awardees in Singapore 'dementia consortium' implicated in research misconduct

The so-called 'dementia consortium' took S$19.4 million of Singapore's money in a grant probably called *AcRF Tier 3 Defining the brain circuitry defects that cause dementia*; due to systemic obfuscation practiced by the perpetrators this information cannot be verified from what the perpetrators chose to disclose. This grant, apparently allocated for developing resources in Singapore, was not used for the intended purpose. Arguably, nothing demonstratable and of note was done with the money. Please contact me for the full report on the Singapore 'dementia consortium'.

5.1. Particulars of research misconduct by Singapore 'dementia consortium'

5.1.1. A Singapore Ministry of Education (MoE) Tier 3 grant for about S$ 19.4 million was announced in 2018 (LKC_Medicine, 2019; NTU_Development_Office_News, 2018; SFN_ad, 2018; The_LKC_Medicine, 2018b) and also in 2020 (NTU, 2020).

5.1.2. Potentially up to sixteen (16) Principal Investigators (PIs) are in the dementia research consortium. I assume some are expert advisers or play other roles and are not grant recipients.

5.1.3. Publications by those PIs produced between 2018 and 2020 were analyzed, namely: (i) affiliation listed on publication; (ii) ethics approval and location where approval was granted; (iii) funding reported in the publication; and (iv) relevance to dementia or Alzheimer's disease. Relevance was defined as 'nil' when the words 'Alzheimer's' or 'dementia' are mentioned zero (Ø) times in a publication,.

5.1.4. Relevance to Alzheimer's disease or dementia in work by PIs in the dementia consortium is effectively nil with two exceptions.

5.1.5. Affiliations listed by those PIs are untransparent.

5.1.6. Ethics reporting for both animal and human research is often problematic or highly problematic.

5.1.7. Use of the MoE Tier 3 public funding is untransparent. It appears the contribution of some PIs was to fund external research with grants not allocated to such a purpose.

5.1.8. Other inconsistencies in the work of those PIs were noted such as duplicated work and putative theses mills.

5.1.9. One PI, Nagaendran Kandiah, is active in dementia but there are serious problems with financial and conflict of interest disclosure, ethics reporting, and the scientific validity of the work.

5.1.10. One PI, Sajikumar Sreedharan, produced 4 articles related to dementia and Alzheimer's disease, 2 articles and 2 analogous to those.

5.1.11. Augustine, G. J. who is heading the consortium, announcing his intention of establishing the consortium and to address dementia said: "At times, when I got too far ahead of everybody else, I would hold back" (The_LKC_Medicine, 2018a). Given the scale of corruption in the present, I am concerned Augustine, G.J. may stop holding back.

5.2. Vyas' role in Singapore 'dementia consortium'

5.2.1. Vyas plays a leading role in the dementia consortium, though what exactly is also ambiguous.

5.2.2. His scientific contribution to the consortium was advertised as "…Optogenetic control of dementia-associated behaviors…" (SFN ad, 2018). In an NTU-published article announcing the dementia grant again in 2020, it states: "…One of the dementia-linked behaviours that the researchers are interested in is memory loss, shares Assoc Prof Ajai Vyas, a behavioural biologist at NTU's School of Biological Sciences who leads one of the three teams supported by the grant. "When the other teams discover circuits that are likely to be involved, we can do behavioural tests to see if we can recreate the symptoms in wide-awake, behaving animals. Our results then inform the work of others studying the circuits and the molecular level in a reciprocal way."…"

(NTU 2020). If this a reference to optogenetics, electrophysiology, chemogenetics, or other techniques to dissect brain circuitry in 'wide-awake, behaving animals', then Vyas, A. has *no* work in this regard. In other words, he has *no* expertise to carry out what he is claiming in the article.

5.3. Work by principal investigators in Singapore 'dementia consortium' partially funded by HFSP

5.3.1. The article (Chen et al., 2017) on which the head of the Singapore 'dementia consortium' George Augustine is co-author is partially funded by HFSP.

5.3.2. The article (Luchetti et al., 2020) on which a putative member of the Singapore 'dementia consortium' Ayumu Tashiro is co-author is partially funded by HFSP.

5.3.3. The article (Makino et al., 2016) on which a putative member of the Singapore 'dementia consortium' Hiroshi Makino is co-first author is partially funded by HFSP.

6. Queries on work produced by other HFSP awardees in Singapore

6.1. HFSP Grant 'Dynamics of collective cell migration on curved surfaces'

6.1.1. The HFSP Grant 'Dynamics of collective cell migration on curved surfaces' was received by Chwee Teck Lim, Delphine Delacour, Jacques Prost, and Deok-Ho Kim (Lim et al., 2021).

6.1.2. I looked through about 230 publication by Lim produced 2018 to 2020. The topic of those publications is collated in Table 4.

6.1.3. I did not immediately recognize any work on collective cell migration on curved surfaces.[3]

6.1.4. One article mentions an HFSP grant to Lim: "…C.T.L. was supported by the National Research Foundation, Singapore, under the Mechanobiology Institute at the National University of Singapore and the Human Frontier Science Program (grant LIP000635/2018)…" (Teo et al., 2020).

6.1.5. One preprint mentions an HFSP grant to Lim with a different number: "…the Human Frontier Science Program (RGP0038/2018) (to C.T.L…." (Gaston et al., 2020).[4]

6.1.6. I did not understand on what Lim's choice of 15 affiliations on publications is dependent, see Table 5. for a summary, and Table 6. for raw data.

6.1.7. Why are preprints from 2018 not yet indexed?

6.2. HFSP Long Term Fellowship 'Exploring the human fetal microbiome and its role in immune system development'

6.2.1. Archita Mishra was awarded an HFSP LTF titled 'Exploring the human fetal microbiome and its role in immune system development' in 2019; the host supervisor is Florent Ginhoux (Mishra and Ginhoux, 2021). The affiliation for Mishra related to the HFSP LTF is the Singapore Immunology Network (SigN), A*STAR, Singapore.

6.2.2. Mishra has a verified profile webpage on Google Scholar which states she is affiliated with A*STAR; however, the Homepage link on this profile is a Twitter account (GoogleScholar_Mishra, 2021). I was unable to access her ORCID profile page.

6.2.3. Of 3 articles and preprints published in 2020 on which Mishra is co-author, none is related to the topic declared for her HFSP LTF (Kwok et al., 2020; Sharma et al., 2020; Wen Seow et al., 2020). Her affiliation on these articles is Singapore Immunology Network (SigN), A*STAR, Singapore. In my opinion, these publications are related to her thesis (Mishra, 2018). To the best of my knowledge, no HFSP funding is mentioned.

6.2.4. Of one patent (Surolia et al., 2019) and one article (Paul et al., 2019) published in 2019 on which Mishra is co-author, none is related to her HFSP LTF.[5] Her affiliation on these publications is the Molecular Biophysics Unit, Indian Institute of Science, Bangalore, India.

6.2.5. To the best of my knowledge, Ginhoux, host supervisor of the HFSP LTF awarded to Mishra, has no research plans related to the grant (A*STAR_Ginhoux, 2021).

6.2.6. To the best of my knowledge, Mishra has no articles listed on the A*STAR repository (A*STAR_OAR, 2021). However, articles on which Mishra is co-author are mentioned on other resources on A*STAR in relation to her co-authors (see for example (A*STAR_Mishra_co-authors, 2021).

6.3. HFSP Grant 'New letters to the DNA alphabet'

[3] One article published prior to Lim's HFSP 2018 Grant does address collective cell migration on curved surfaces (Tarle et al., 2017).

[4] Author names on this preprint appear to be stated as '[last name] [first name]' with no comma.

[5] Please note that although Mishra et al. (2019) is listed on Mishra's Google Scholar profile page as '2019', it is a corrigendum, the article is Mishra et al. (2018).

6.3.1. The HFSP Grant 'New letters to the DNA alphabet' was received by Lars Hestbjerg Hansen, Valerie De Crecy-Lagard, and Sylvain Moineau in 2018 (Hansen et al., 2021).

6.3.2. The article (Hutinet et al., 2019) reported to be partially funded by this Grant is co-authored by Liang Cui, Seetharamsingh Balamkundu, Shanmugavel Gnanakalai, Ramesh Neelakandan affiliated with the Singapore-MIT Alliance for Research and Technology, Antimicrobial Resistance Interdisciplinary Research Group, Campus for Research Excellence and Technological Enterprise, Singapore; Chuan Fa Lui, affiliated with the School of Biological Sciences, Nanyang Technological University, Singapore; and Peter C. Dedon, affiliated with Singapore-MIT Alliance for Research and Technology, Antimicrobial Resistance Interdisciplinary Research Group and the Department of Biological Engineering and Center for Environmental Health Sciences, Massachusetts Institute of Technology, Cambridge, MA, USA.[6] Article metadata is incorrectly placed in the MIT repository, only 3 of 19 authors are listed (MIT_*Hutinet_et_al._2019*, 2021). The article is not listed on NTU repository, nor Singapore institutional webpages of any of the 6 co-authors working in Singapore (NTU_Liu, 2021; SMART_Balamkundu_1, 2021; SMART_Cui, 2021; SMART_Dedon, 2021; SMART_Neelakandan, 2021; SMART_Shanmugavel, 2021). It is found on one co-author's MIT webpage (MIT_Dedon, 2021).

6.3.3. The article (Kot et al., 2020) reported to be partially funded by this Grant is co-authored by Liang Cui, affiliated with the Antimicrobial Resistance Interdisciplinary Research Group, Singapore-MIT Alliance for Research and Technology, Singapore and Peter C. Dedon affiliated with the Antimicrobial Resistance Interdisciplinary Research Group, Singapore-MIT Alliance for Research and Technology, Singapore, and the Department of Biological Engineering, Massachusetts Institute of Technology, Cambridge, MA, USA. I could not find an institutional listing for this article associated with these 2 co-authors (MIT_Dedon, 2021; SMART_Cui, 2021; SMART_Dedon, 2021).

6.3.4. Other publications partially funded by this grant, related to the two above, and co-authored by overlapping and/or different sets of authors include (Alanin et al., 2019; Djurhuus et al., 2020; Hylling et al., 2020; Jørgensen et al., 2020; Kyrkou et al., 2019; Olsen et al., 2020a; Olsen et al., 2020b; Olsen et al., 2020c; Pedersen et al., 2020a; Pedersen et al., 2020b; Rasmussen et al., 2019).

[6] Balamkundu is said to work in the Liu Lab at Nanyang Technological University (SMART Balamkundu 2, 2021), and I could not find an institutional reference for 'Balamkundu' on NTU websites.

Table 4. Publications by Chwee Teck Lim 2018 - 2020	
Topic	**Publication**
Circulating cells; expansion; microfluidics; devices; label-free extraction; matrisome; biomarker cancer cells	**Article:** (Abouleila et al., 2019; Chen et al., 2020; Geekiyanage et al., 2019; Jia et al., 2018; Khoo et al., 2019a; Khoo et al., 2019b; Khoo et al., 2018; Khoo et al., 2019d; Lim et al., 2019a; Lim et al., 2018; Lim et al., 2019d; Lim et al., 2019e; Lim et al., 2019f; Lin et al., 2019; Onidani et al., 2019; Soon et al., 2020; Sreejith et al., 2019; Sreekanth et al., 2019b; Ye et al., 2018; Ye et al., 2019; Yeo et al., 2018; Yin et al., 2018a; Yin et al., 2018b; Yin et al., 2020; Zeming et al., 2020)
	Review: (Lim et al., 2019b; Lim et al., 2019c; Lim et al., 2020a; Vaidyanathan et al., 2019; Venugopal Menon et al., 2019; Yeo and Lim, 2018)
	Preprint: (Bin Lim et al., 2018; Yeo et al., 2018)
Cell migration; collective, mechanoptosis; mechanobiology of cancer cells	**Article:** (Cai et al., 2019; Doss et al., 2020; Jain et al., 2020; Le et al., 2020; Seddiki et al., 2017; Song et al., 2018; Xia et al., 2019; Yoshino et al., 2020)
	Review: (Chaudhuri et al., 2018; Chen et al., 2019; Saw et al., 2018; Shang et al., 2019; Xi et al., 2019)
	Preprint: (Gaston et al., 2020; Le et al., 2020; Lin et al., 2019; Tijore et al., 2018)
Nanomaterials and cell growth	**Article:** (Kenry et al., 2018; Kenry et al., 2020; Ong et al., 2020; Sanandiya et al., 2019; Vasudevan et al., 2020)
	Review: (Tan et al., 2019)
Biosensing	**Article:** (Gao et al., 2020; Sreekanth et al., 2018a; Sreekanth et al., 2019a; Sreekanth et al., 2018b; Yu et al., 2019a; Yu et al., 2019b; Yu et al., 2018)
	Preprint: (Zhang et al., 2020)
Mechanobiology of parasites	**Article:** (Lim et al., 2020b; Naidu et al., 2018; Sun et al., 2018; Zhang et al., 2018)
	Review: (Naidu et al., 2019)
Batteries	**Article:** (Edison et al., 2018a; Edison et al., 2019a; Edison et al., 2018b; Edison et al., 2019b)
Other [traction force microscopy, antenna, others]	**Article:** (Ding et al., 2019; Hu et al., 2020; Kutty et al., 2018; Narayanaswamy et al., 2019; Sun et al., 2019; Teo et al., 2020; Wang et al., 2018a; Ye et al., 2020; Zhang et al., 2019; Zhao et al., 2018)[7]
Patent	**Patent:** (Khoo et al., 2019c; Ramji et al., 2019; Warkiani et al., 2020; Yeo and Lim, 2019; Yeo et al., 2020)

[7] See also Narayanaswamy et al. (2015).

Table 5. Affiliations for Chwee Teck Lim on publications, 2018 - 2020[8]		
#	**Affiliation**	**Number of publications**
1	Mechanobiology Institute, National University of Singapore	59
2	Department of Biomedical Engineering, National University of Singapore	74
3	Department of Mechanical Engineering, National University of Singapore	8
4	NUS Graduate School for Integrative Sciences and Engineering, National University of Singapore	15
5	Centre for Advanced 2D Materials and Graphene Research Centre, National University of Singapore	7
6	Biomedical Institute for Global Health Research and Technology, National University of Singapore	33
7	Institute for Health Innovation and Technology (iHealthtech), National University of Singapore	21
8	Department of Bioengineering, National University of Singapore	1
9	Department of Physics, National University of Singapore	1
10	Critical Analytics for Manufacturing Personalized-Medicine (CAMP) IRG, Singapore-MIT, Alliance for Research and Technology (SMART) Centre, Singapore	2
11	Singapore-MIT Alliance, National University of Singapore	1
12	BioSystems and Micromechanics, IRG, Singapore-MIT Alliance for Research and Technology, Singapore	2
13	Singapore-MIT Alliance for Research and Technology (SMART) Centre, Infectious Diseases IRG, Singapore	3
14	BioSystems and Micromechanics (BioSyM) IRG, Singapore-MIT Alliance for Research and Technology (SMART) Centre, Singapore	4
15	National University of Singapore	1

[8] Raw data in Table 6.

7. Conflict of interest disclosure by the author

7.1. On 26 November 2020, I, Mohamed Mustafa Mahmoud Helmy, submitted a report on widespread and systemic misconduct in research and academic activity by Ajai Vyas and Rupshi Mitra at Nanyang Technological University to the University Leadership, Office of Human Resources, Legal and Secretarial Office, and Research Integrity Office.

7.2. Under the 'no reason' clause my employment contract with Nanyang Technological University was terminated by the Office of Human Resources on 4 December 2020.

7.3. Since 19 December 2020, police reports have been lodged on widespread corruption in research and academic institutes in Singapore, and including harassment of my person at my place of residence by a person alleging to work for Nanyang Technological University, theft, cheating, mischief, forgery, extortion, spying, digital hacking, and other matters.

7.4. I may share with collogues in a confidential and privileged manner upon request scientific details of my report on misconduct in research and academic activity in Singapore by Ajai Vyas, Rupshi Mitra, and other principal investigators in the 'dementia consortium'.

I, Mohamed Mustafa Mahmoud Helmy, hereby declare that to the best of my knowledge all information contained herein is true.

Mohamed Helmy
Singapore, 4.1.2021

Table 6. Raw data for Table 5.
Mechanobiology Institute, National University of Singapore, Singapore
(Bin Lim et al., 2018; Cai et al., 2019; Chaudhuri et al., 2018; Chen et al., 2020; Ding et al., 2019; Doss et al., 2020; Gao et al., 2020; Geekiyanage et al., 2019; Hu et al., 2020; Jain et al., 2020; Jia et al., 2018; Kenry et al., 2018; Khoo et al., 2019a; Khoo et al., 2019b; Khoo et al., 2018; Khoo et al., 2019d; Le et al., 2020; Lim et al., 2019a; Lim et al., 2019b; Lim et al., 2019c; Lim et al., 2020a; Lim et al., 2018; Lim et al., 2019d; Lim et al., 2019e; Lim et al., 2019f; Lin et al., 2019; Naidu et al., 2018; Narayanaswamy et al., 2019; Onidani et al., 2019; Sanandiya et al., 2019; Saw et al., 2018; Seddiki et al., 2017; Shang et al., 2019; Song et al., 2018; Soon et al., 2020; Sreejith et al., 2019; Sreekanth et al., 2018b; Sun et al., 2018; Tan et al., 2019; Teo et al., 2020; Tijore et al., 2018; Vaidyanathan et al., 2019; Vasudevan et al., 2020; Venugopal Menon et al., 2019; Xi et al., 2019; Xia et al., 2019; Ye et al., 2018; Ye et al., 2019; Yeo et al., 2018; Yin et al., 2018a; Yin et al., 2018b; Yin et al., 2020; Yu et al., 2019a; Yu et al., 2019b; Yu et al., 2018; Zeming et al., 2020; Zhang et al., 2019; Zhang et al., 2018; Zhao et al., 2018).
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