

One Health – One Brain

Rethinking Mental Health:

A One Health Perspective Across Species

médecine
vétérinaire
umontreal

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POUR la santé du
monde

Descartes (1596-1650)

- The animal is nothing more than a well-built machine.
- No thinking
- No emotion
- No possible suffering



Les animaux ne sont que de simples machines, des automates. Ils ne ressentent ni plaisir, ni douleur, ni quoi que ce soit d'autre. Bien qu'ils puissent pousser des cris quand on les coupe avec un couteau ou se contorsionner dans leurs efforts pour échapper au contact d'un fer chaud, cela ne signifie pas qu'ils ressentent de la douleur dans ces situations.

Ils sont gouvernés par les mêmes principes qu'une horloge, et si leurs actions sont plus complexes que celles d'une horloge, c'est parce que celle-ci est une machine construite par les humains, alors que les animaux sont des machines infiniment plus complexes, faites par Dieu.



René Descartes
Discours de la Méthode

Charles Darwin



Man in his arrogance thinks himself a great work, worthy the interposition of a great deity. More humble and I believe true to consider him created from animals.

AZ QUOTES



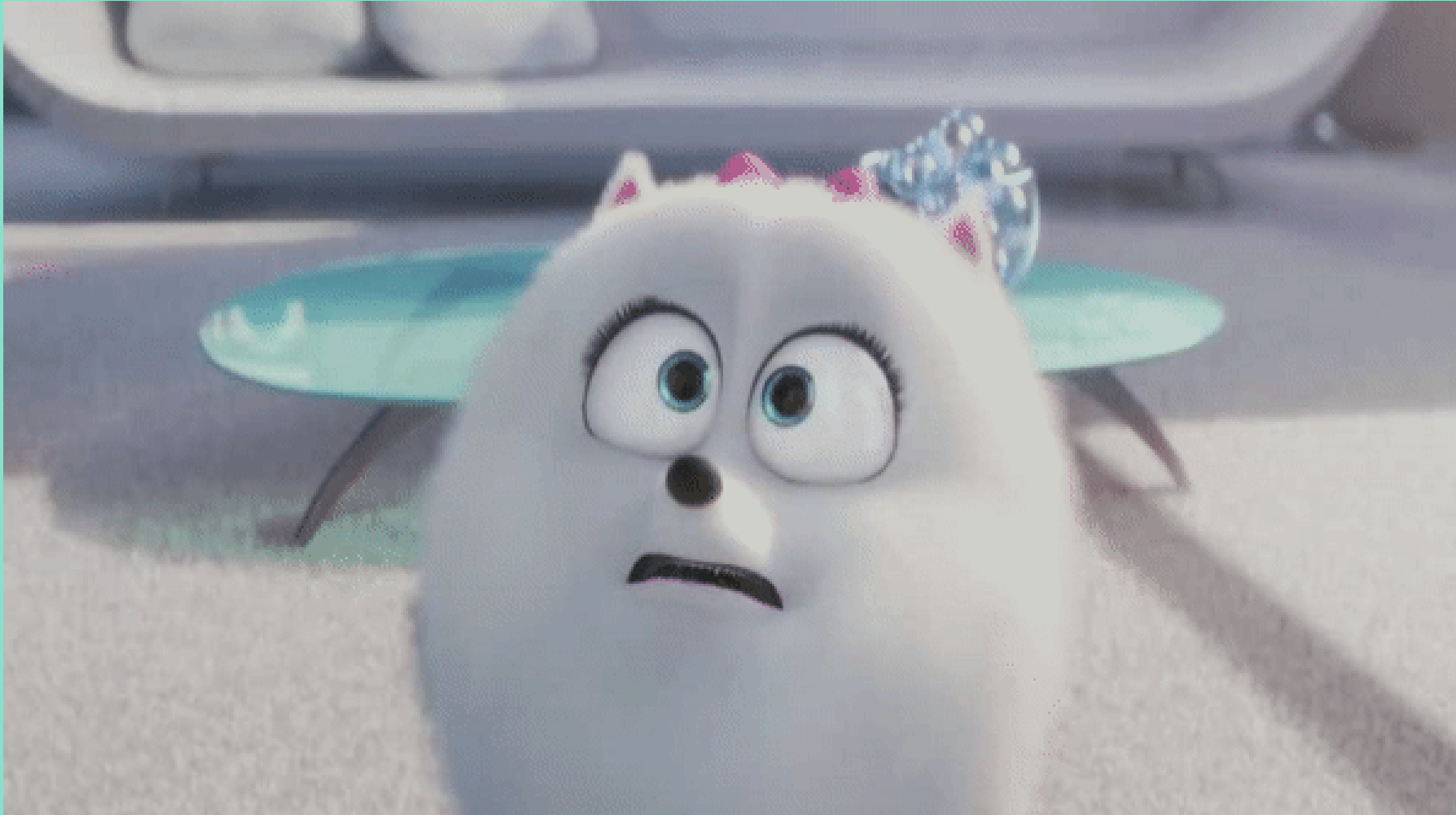
**Psychiatry has long
been seen as
uniquely human.**



TREAT ANIMAL MENTAL HEALTH?



Please meet my patients...























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Panthera uncia KANG , 2015-05-15, 43: US from 2023-01-11

Panthera uncia, KANG, , ,
M
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ID: M15049

GE
1/01/23 09:39:02AM ADM Panthera uncia, Kang M15049

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Date: 2023-01-11
Study Date: 2023-01-11
Study Time: 09:20:13

12L Abdomen MI 1.2 TIs 0.5

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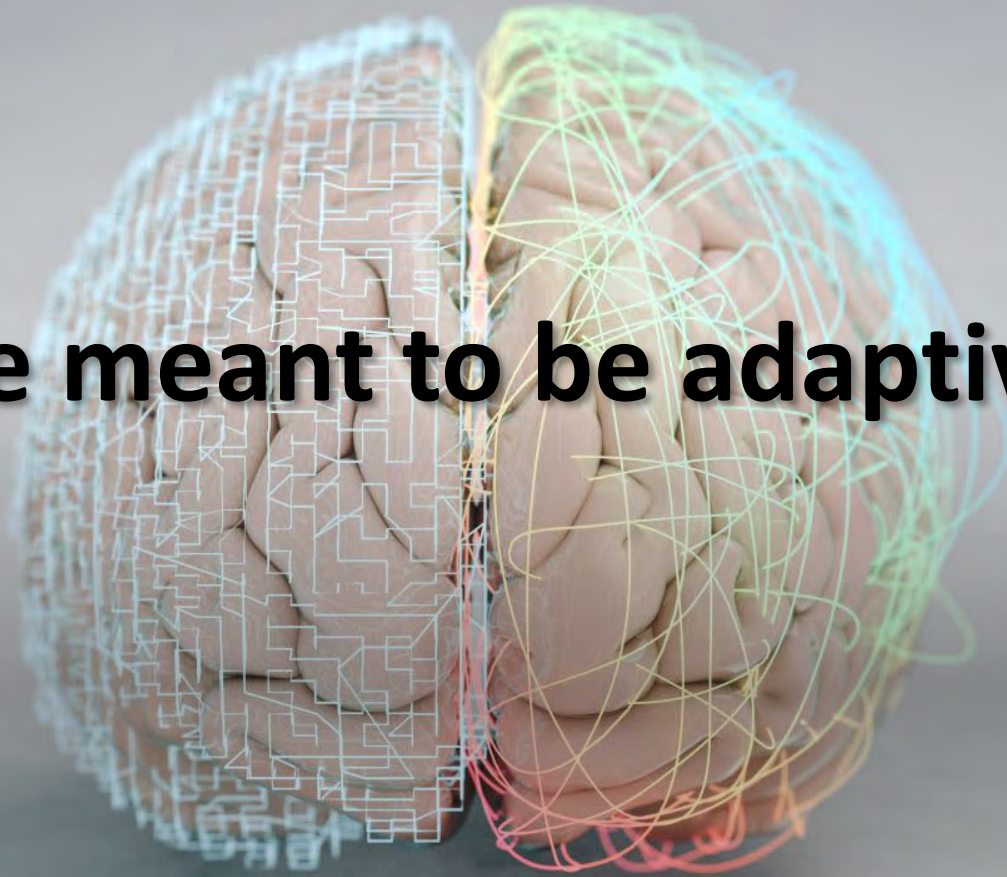






Why is this
relevant to
human
medicine?



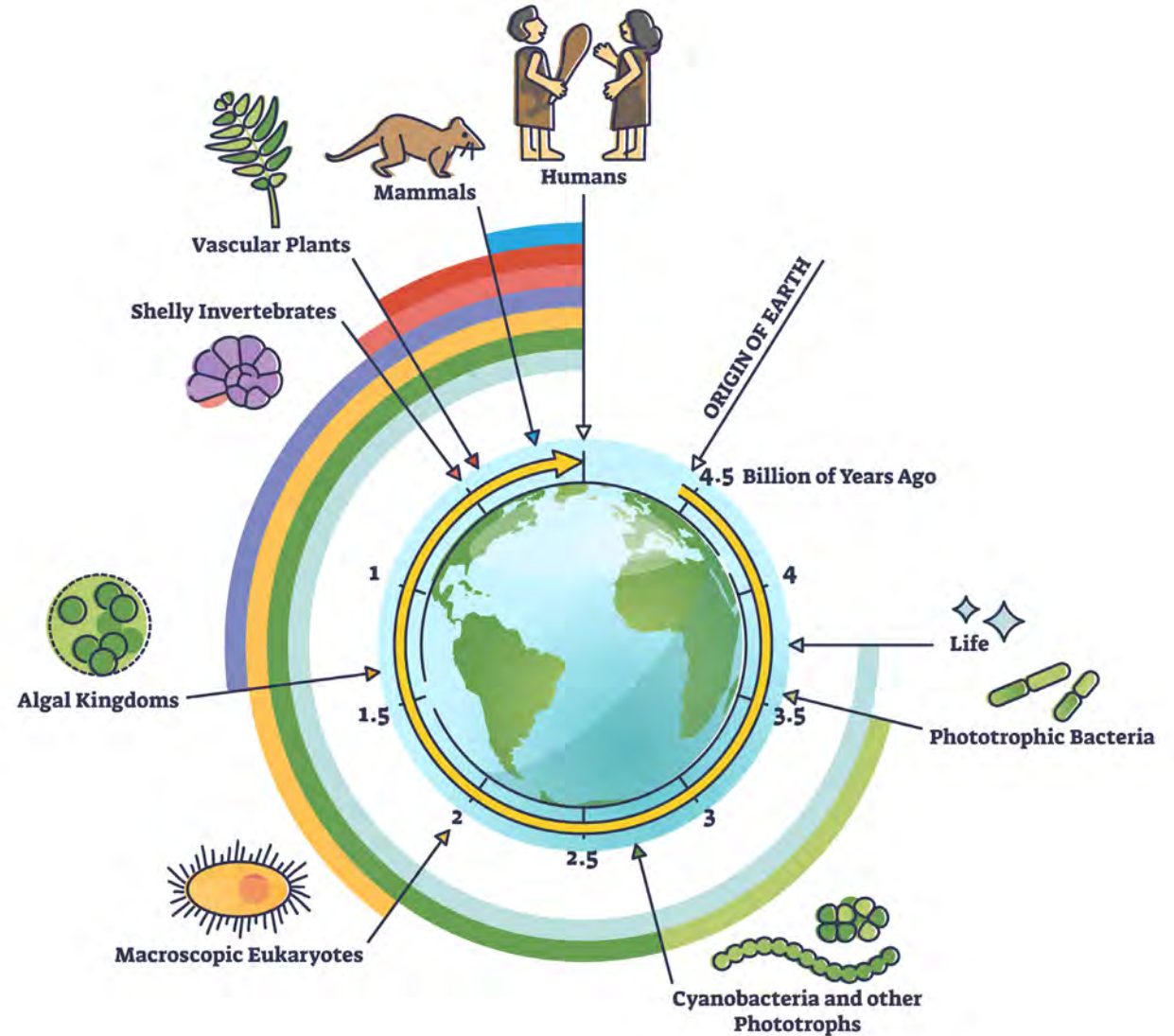


Behaviours are meant to be adaptive/functional.

Mental health disorders occur when adaptive systems under abnormal pressure become maladaptive.

Understand the
evolutionary
origin of mental
health problems

EVOLUTION OF LIFE





- Gregg TR, Siegel A. Brain structures and neurotransmitters regulating aggression in cats: implications for human aggression. Prog Neuropsychopharmacol Biol Psychiatry. 2001 Jan;25(1):91-140.

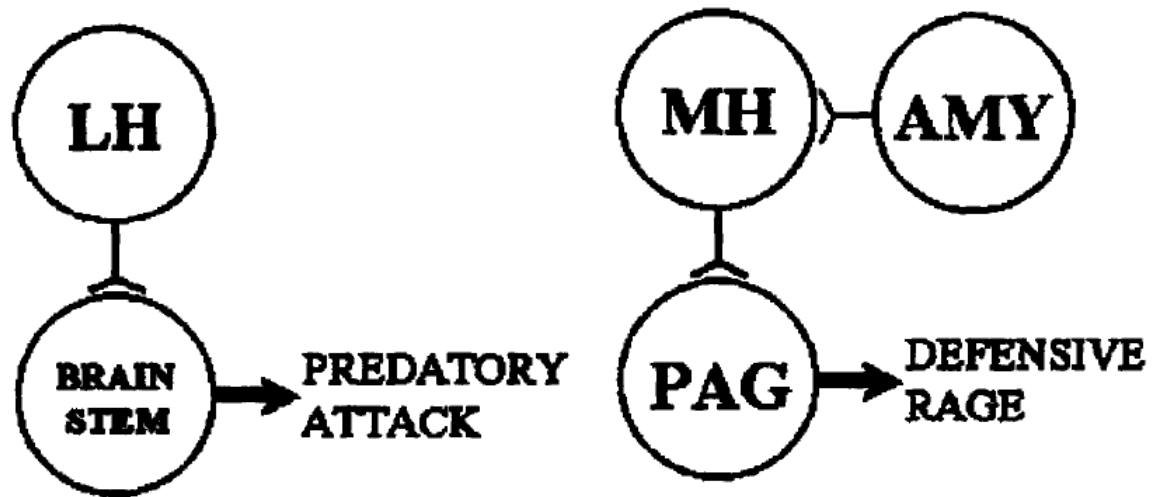


Fig 1. Major pathways for predatory attack (left) and defensive rage (right). AMY, amygdala; LH, lateral hypothalamus; MH, medial hypothalamus; PAG, periaqueductal gray of the midbrain.

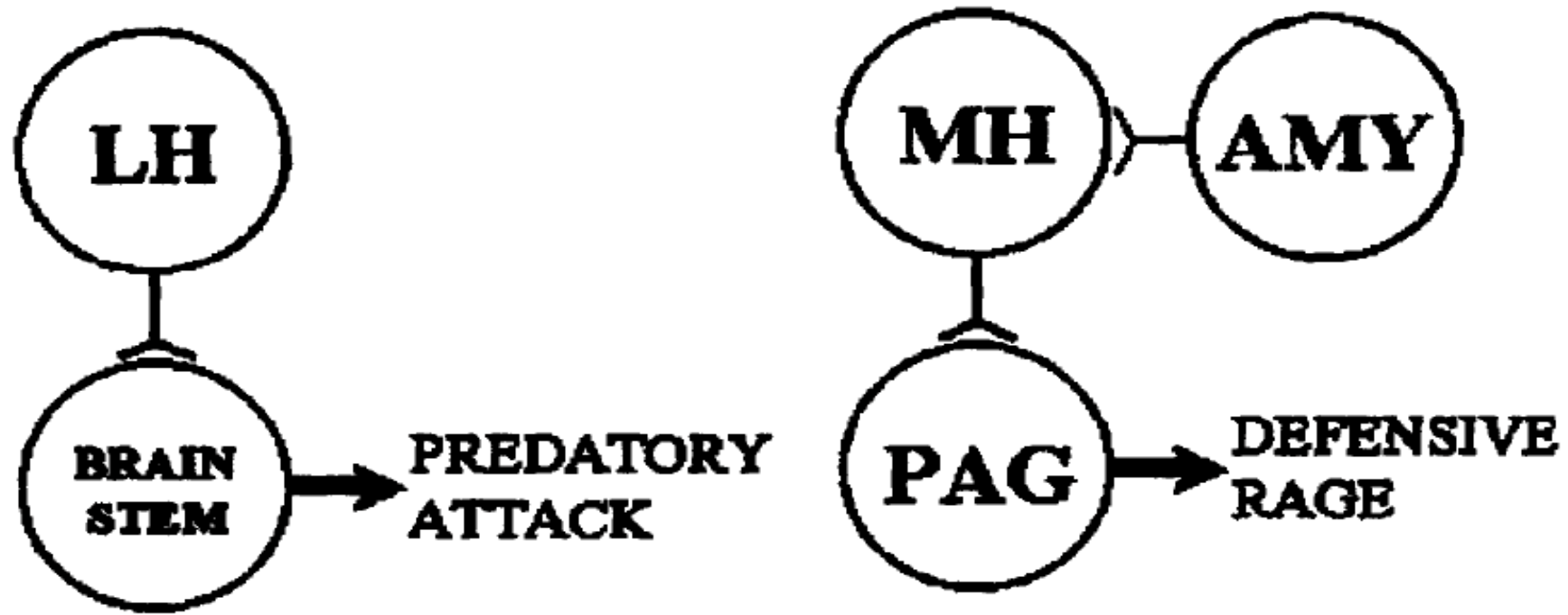


Fig 1. Major pathways for predatory attack (left) and defensive rage (right). AMY, amygdala; LH, lateral hypothalamus; MH, medial hypothalamus; PAG, periaqueductal gray of the midbrain.

Gregg TR, Siegel A. Brain structures and neurotransmitters regulating aggression in cats: implications for human aggression. *Prog Neuropsychopharmacol Biol Psychiatry*. 2001 Jan;25(1):91-140.



Un derstan d un derlyin g processes

Reduce the stigma





My One Health Research Areas



CHRONIC STRESS ACROSS SPECIES



**HUMAN-ANIMAL
EMOTIONAL CONTAGION**



BIOMARKER DISCOVERY



Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

Journal of Veterinary Behavior

journal homepage: www.elsevier.com/locate/jvbe



Association between behavioral factors and recurrence rate in cats with feline "idiopathic" cystitis

Marianne Caudron ^a , Pascale Laroche ^a, Isabelle Bazin ^{a,b}, Marion Desmarchelier ^{a,c,*} 

► [Conserv Physiol.](#) 2025 Apr 11;13(1):coaf022. doi: [10.1093/conphys/coaf022](#) 

Putting the health in hidden Markov models: incorporating allostatic load indices into movement ecology analyses

[Courtney R Shuert](#)^{1,2,✉}, [Marie Auger-Méthé](#)^{3,4}, [Karine Béland](#)⁵, [Nigel E Hussey](#)⁶, [Marion R Desmarchelier](#)⁷,
[Marianne Marcoux](#)⁸

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VALIDATION OF ENZYME-LINKED IMMUNOSORBENT ASSAY TECHNIQUES TO MEASURE SERUM DEHYDROEPIANDROSTERONE (DHEA) AND DHEA-S IN NARWHALS (*MONODON MONOCEROS*)

Karine Béland, DMV, IPSAV, DES, Stéphane Lair, DMV, DES, DVSc, DACZM, Mario Guay, DEC (Medical Biology), Tristan Juette, PhD, Christian Bédard, DMV, MSc, DACVP, Sandra R. Black, BSc, DVM, Dipl Path, Marianne Marcoux, PhD, Cortney A. Watt, PhD, Nigel E. Hussey, PhD, and Marion Desmarchelier, DMV, MSc, DACZM, DECZM (Zoo Health Management), DACVB



Animal Welfare

www.cambridge.org/awf

Scoping Review

Cite this article: Levallois P, Buczinski S,

Relationships between farmer well-being and the welfare of their animals: A One Welfare scoping review

Pierre Levallois^{1,2} , Sebastien Buczinski¹, Marion Desmarchelier¹,
Sonia Lupien^{2,3} and Marianne Villettaz Robichaud¹







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Proteomics Clinical Applications

RESEARCH ARTICLE

 Open Access

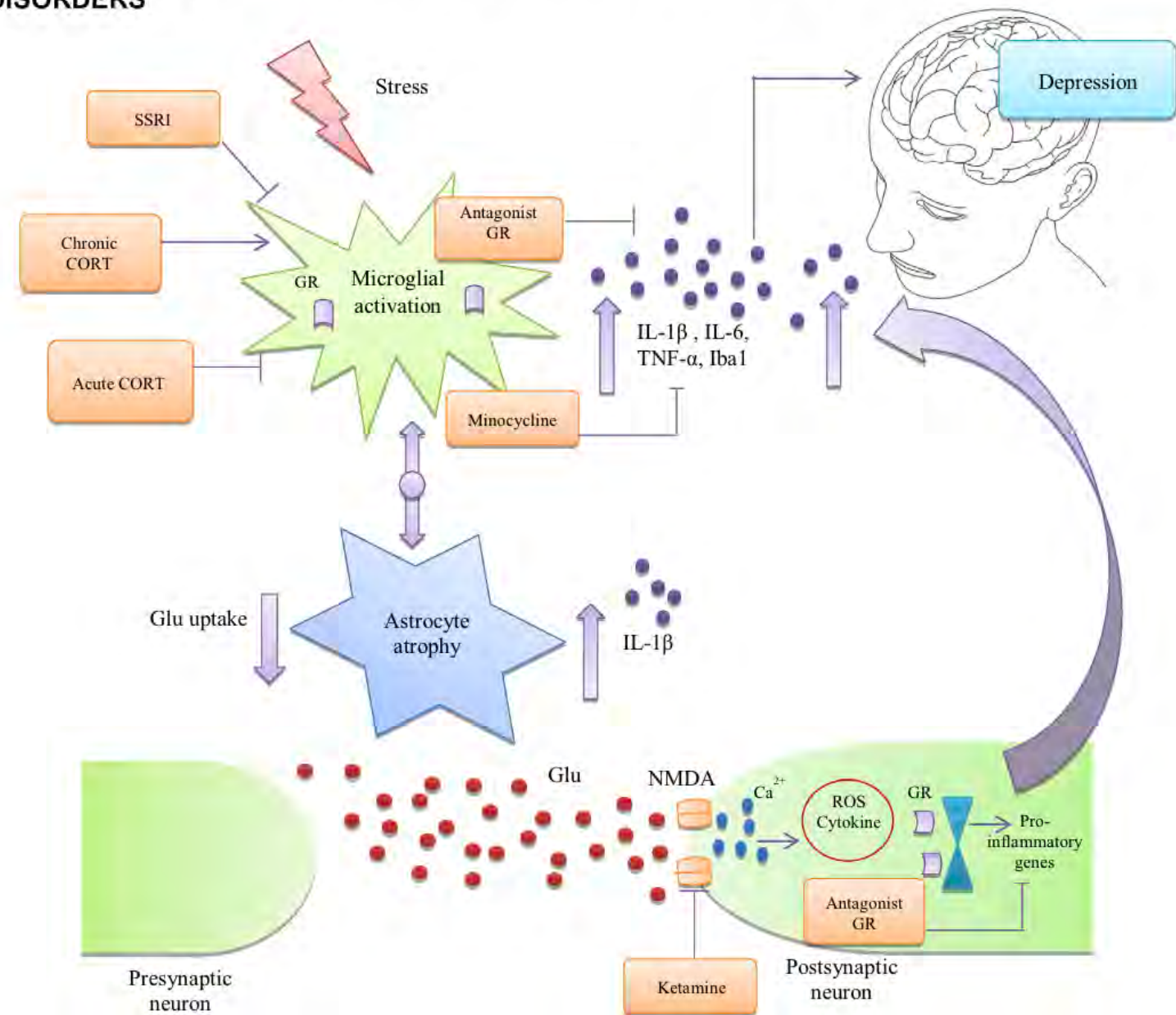


Plasma Proteomic Profiling of a Group of Anxious Dogs by LC-MS/MS: A Case–Control Study

[Claudia Gaither](#) , [Robert Popp](#), [Christoph H. Borchers](#), [Francis Beaudry](#), [Marion Desmarchelier](#)

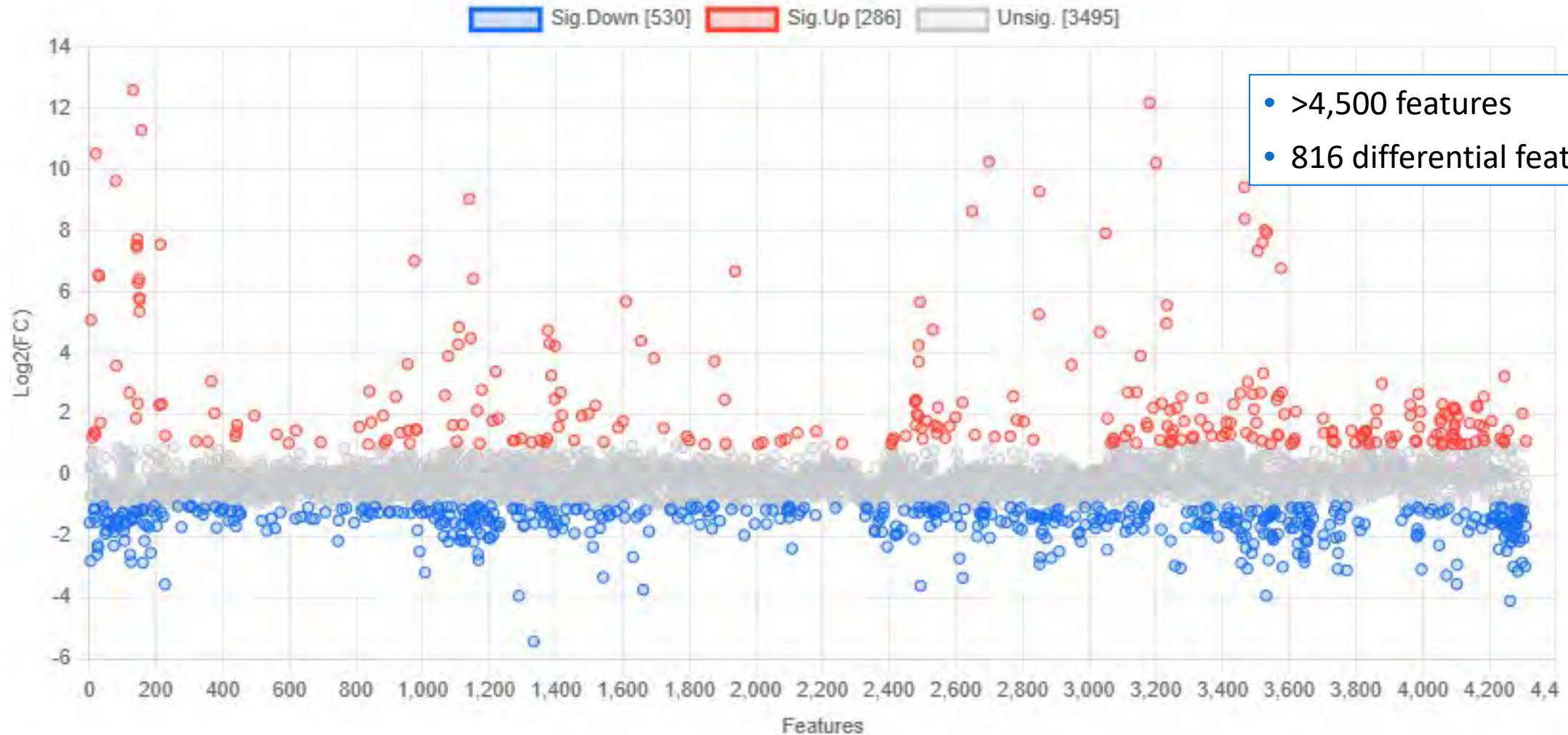
First published: 04 July 2025 | <https://doi.org/10.1002/prca.70014> |

 [VIEW METRICS](#)



H: Plasma metabolic profile of anxious dogs $\neq$ non-anxious dogs

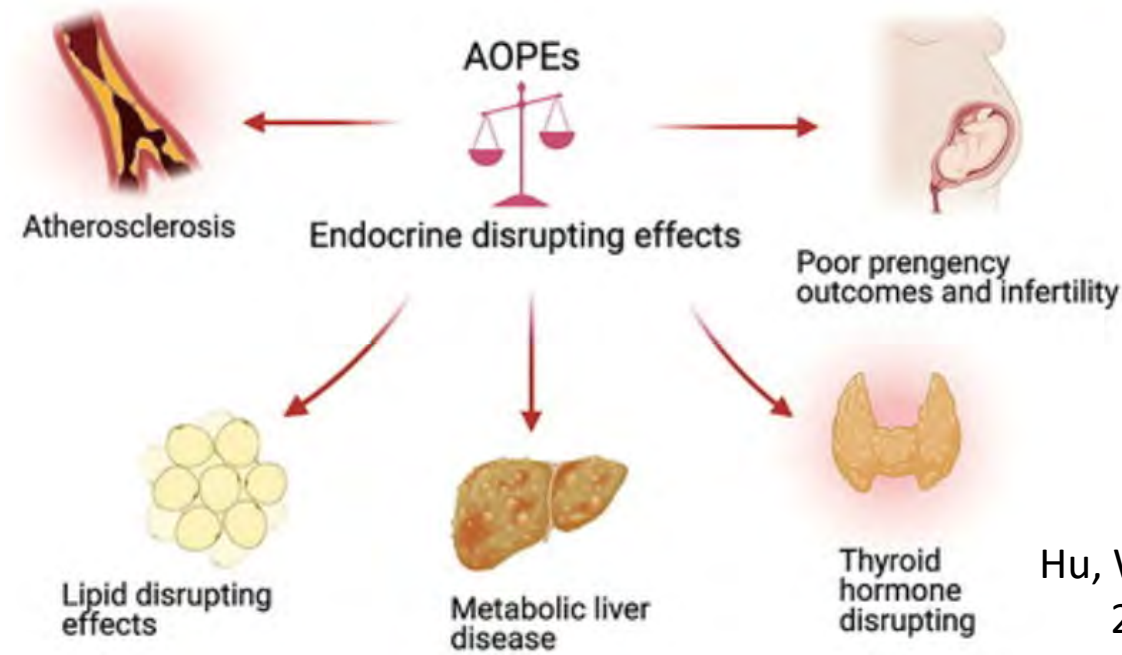
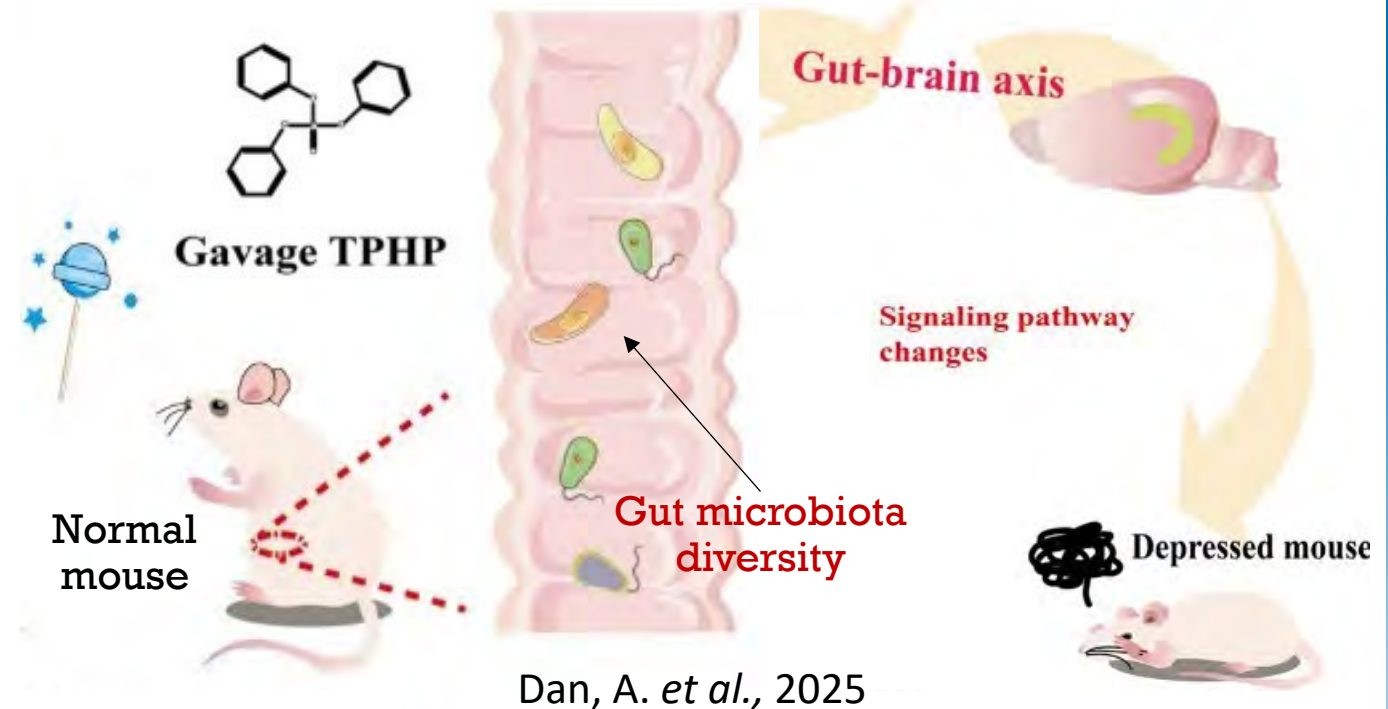
- Significant metabolite level differences



Log2 FC ≥ 1 or ≤ -1 ; t-test, p-value ≤ 0.05

ACCIDENTAL FIND: TRIPHENYL PHOSPHATE

- **High** in anxious dogs
- Endocrine-disrupting chemical
- Flame retardant
- Neurotoxic to aquatic animals
- Effects on mammals at environmentally relevant doses (?)



- Change in microbiome composition
 - ↑ pro-inflammatory strains
- Activate brain pathways → anxiety and depression-like behaviours

Beyond Zoonoses in One Health: Non-communicable Diseases Across the Animal Kingdom

*B. Natterson-Horowitz^{1,2†}, Marion Desmarchelier^{3†}, Andrea Sylvia Winkler^{4,5†} and
Hélène Carabin^{6,7,8,9†}*

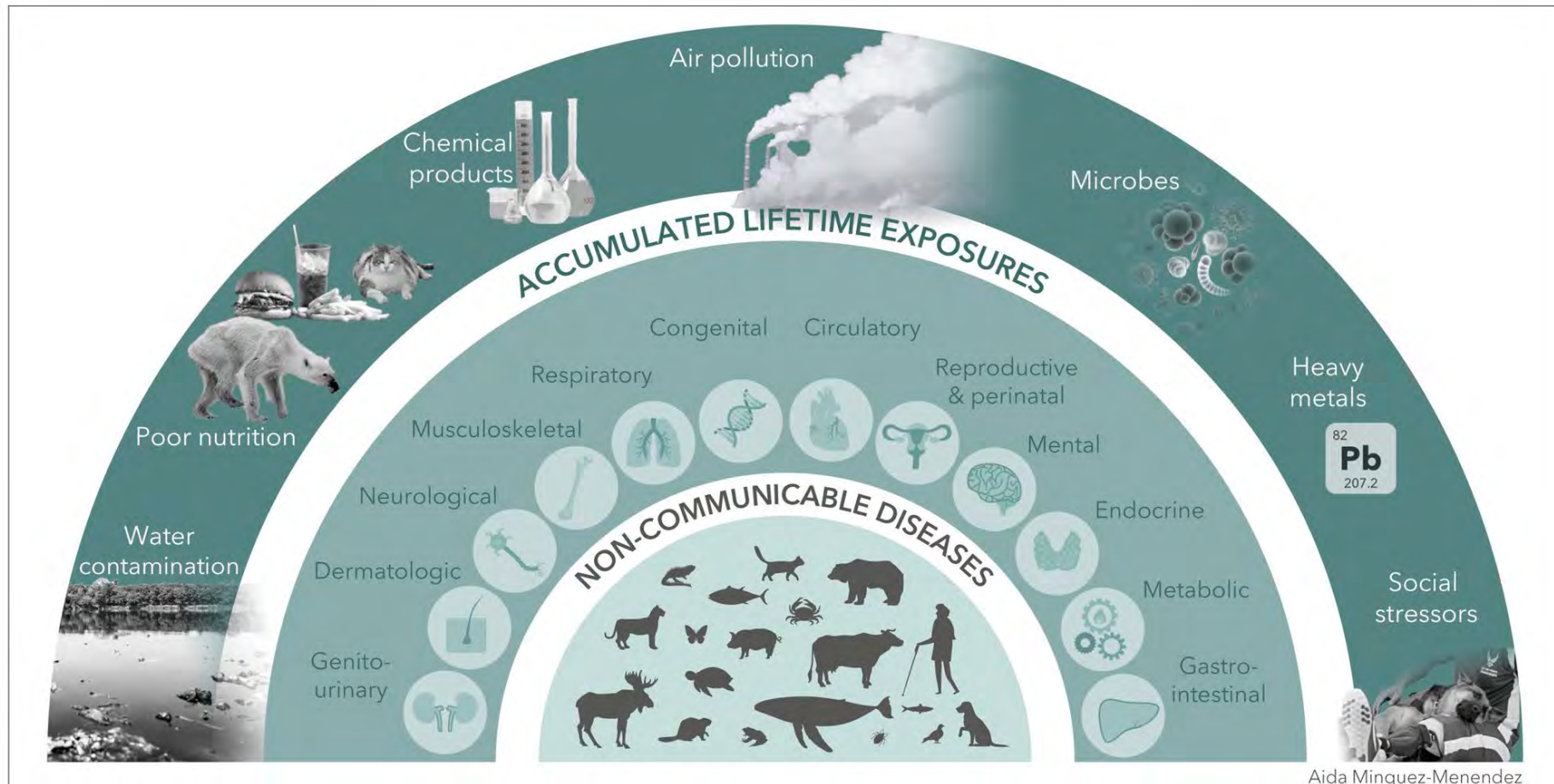


FIGURE 1 | Shared environmental exposures contribute to NCDs across species.

Conclusion



Clinique Vétérinaire Animalia inc.



Publié par Pat Bales

À l'instant · 🌐

La santé mentale touche tout le monde! N'oubliez pas de donner pour la cause!! #BellCause 💙



Conclusion: One Health - One Welfare

THE IMPORTANCE OF A BIOLOGICALLY ADEQUATE ENVIRONMENT

Healthy Environment (Adaptive Processes)

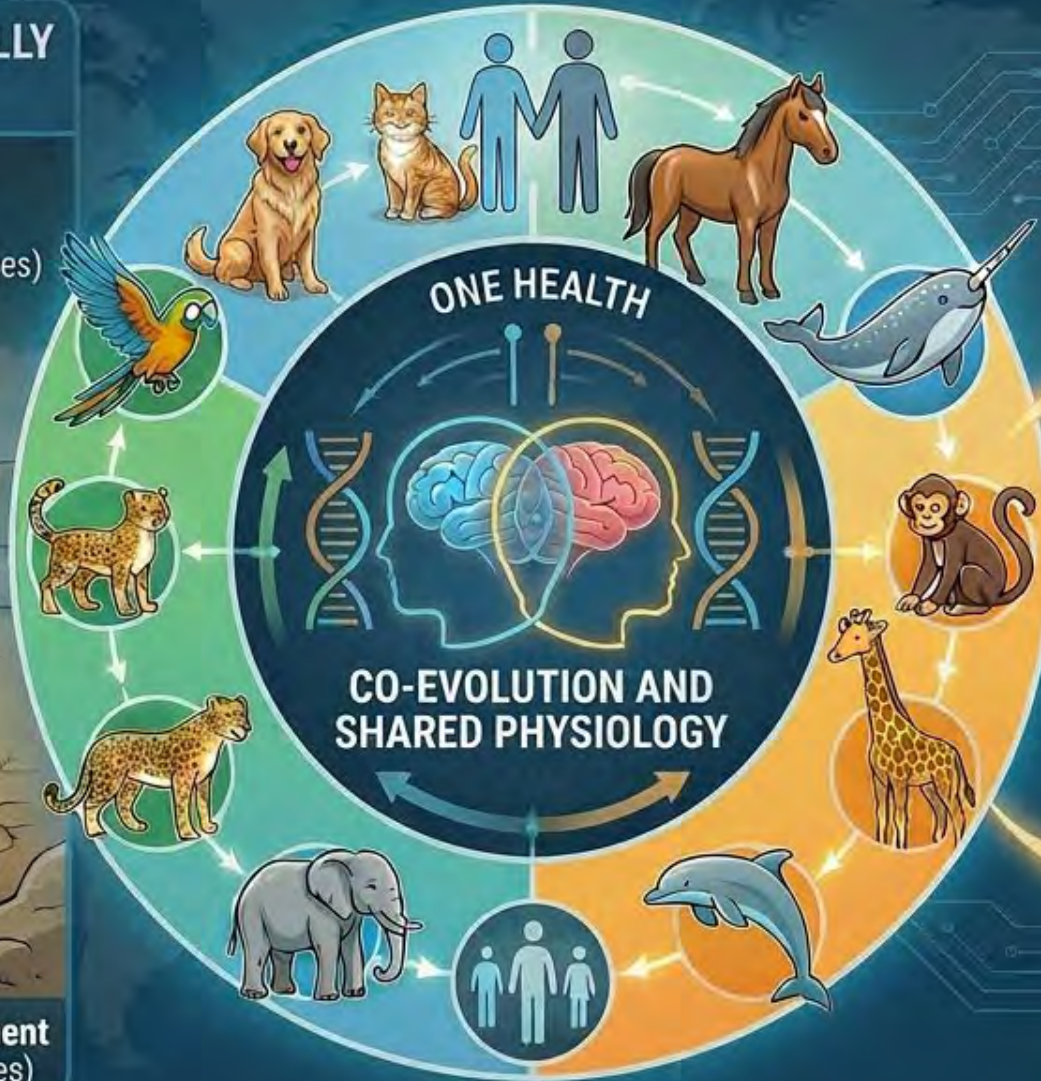


Healthy Environment
(Adaptive Processes)

Inadequate Environment (Maladaptive Processes)



Inadequate Environment
(Maladaptive Processes)



BILATERAL EMOTIONAL CONTAGION

DAIRY FARMER & COWS



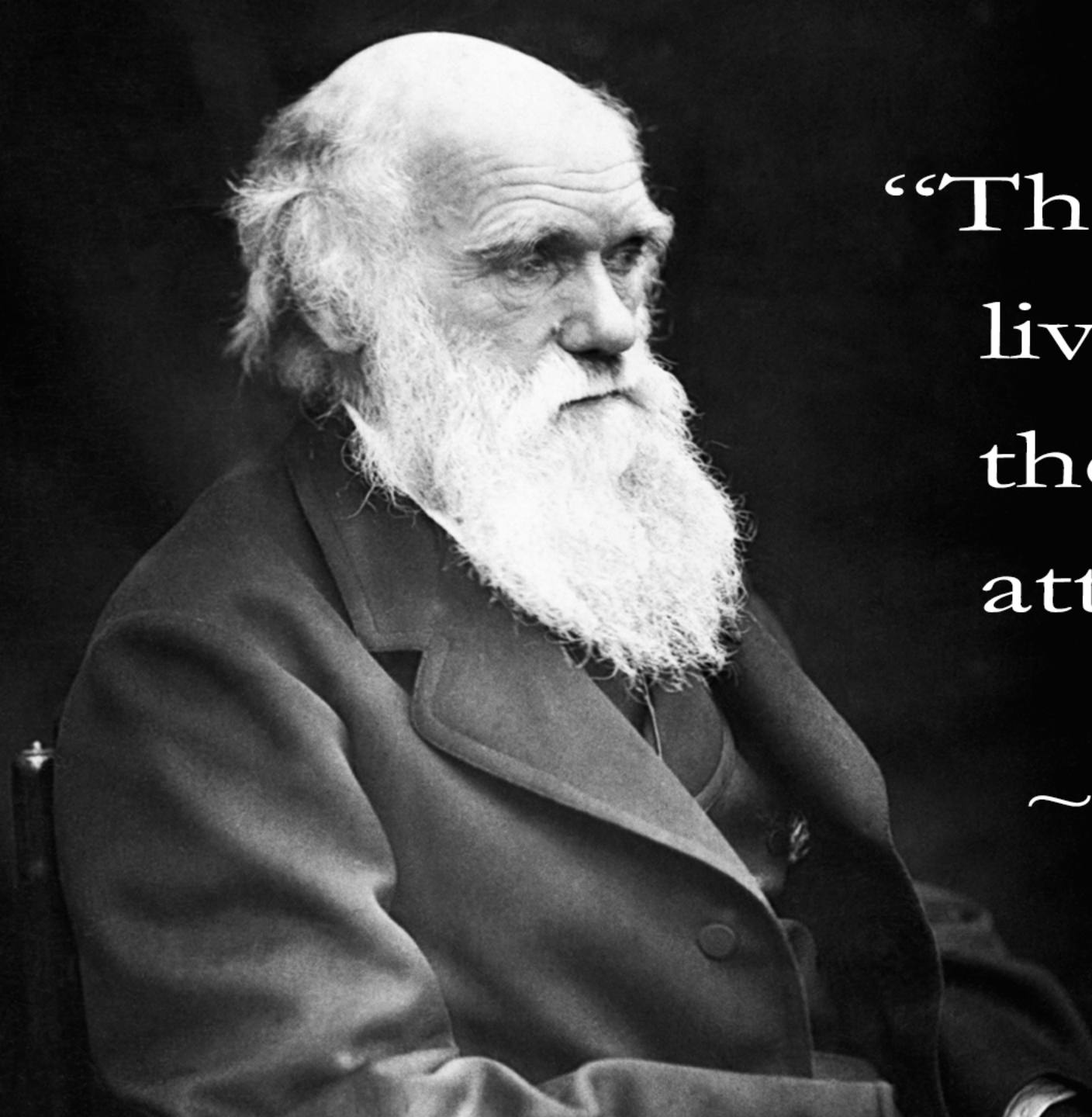
Positive Interaction

AUTISTIC CHILD & THERAPEUTIC HORSE



Therapeutic Bond

TOWARDS INTEGRATED WELL-BEING FOR ALL



“The love for all
living creatures is
the most noble
attribute of man.”

~Charles Darwin
scientist





THANK YOU!