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Dodson Award

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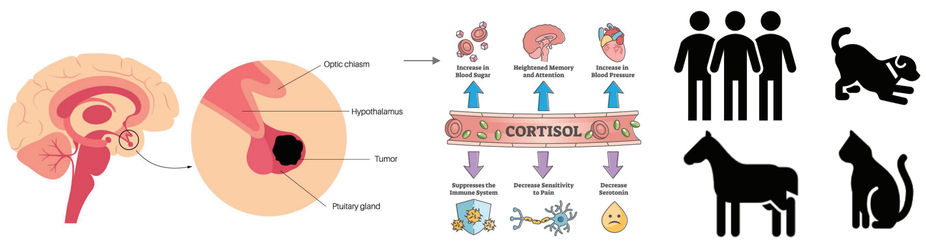
Comparative pathology of pituitary neuroendocrine tumors in canine and human Cushing's disease

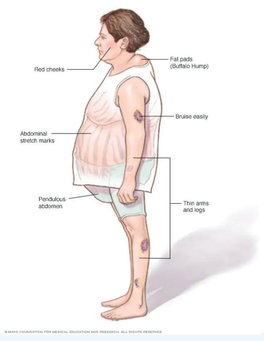
Using biomarker imaging and in-vitro patient-derived organoid lines, I investigate the comparative aspects of Cushing's disease between humans and canines through tumor targets and drug response.

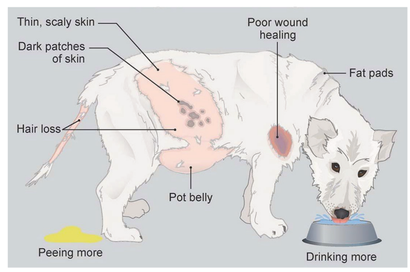
Cushing's disease is a multispecies endocrine disorder



Pituitary neuroendocrine tumors (PitNETs) lead to excessive production of cortisol, causing Cushing's disease

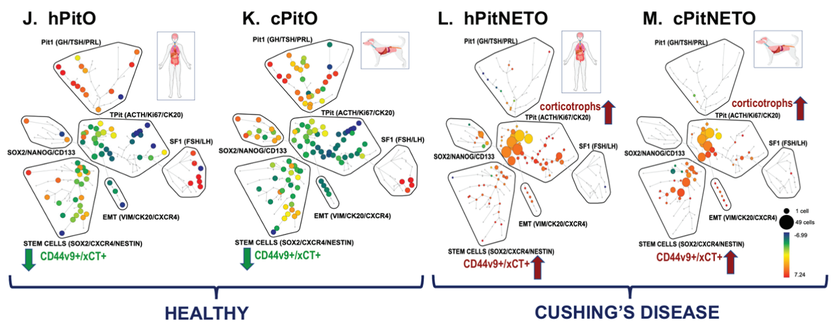
Canines and humans have same clinical presentations





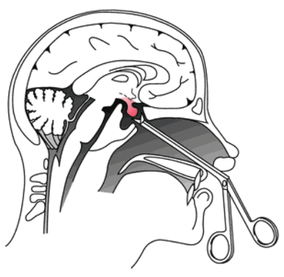
Cushing's disease (CD) is most similar in these species

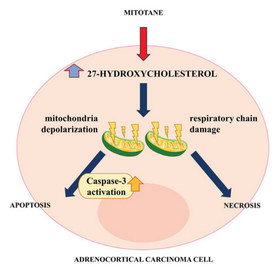
Same pituitary cell lineages present in both species



Indicates comparable PitNET biology in dogs and humans

CD treatments have low efficacy against PitNETs



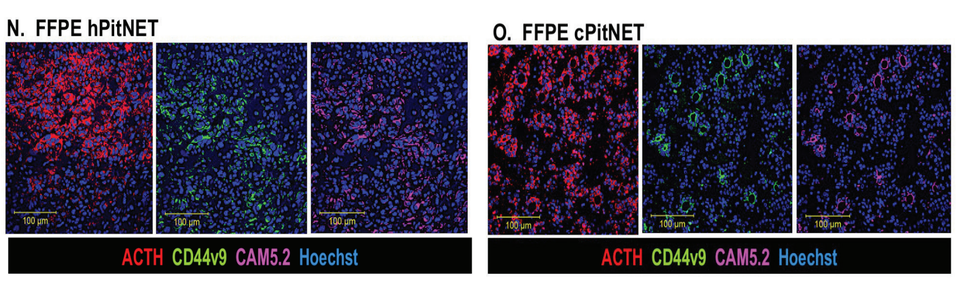


50% tumor recurrence after surgery

CD drugs target adrenal gland, not pituitary

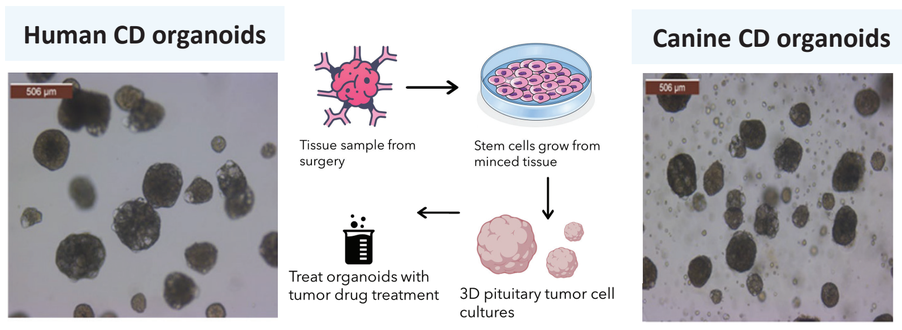
Need for treatments that can kill PitNET cells

Biomarker imaging can identify tumor drug targets



Drugs that attack targets can then be tested

Patient-derived organoids model drug response in CD



Drugs can then be further tested in CD clinical trials

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