

UNIVERSIDADE FEDERAL DO RIO DE JANEIRO
Centro de Ciências da
Saúde – CCS Instituto de Ciências Biomédicas – ICB

**SELEÇÃO DE CANDIDATOS PARA O CONCURSO PÚBLICO PARA PROVIMENTO EFETIVO
DE VAGAS NO CARGO DE PROFESSOR DA
CARREIRA DE MAGISTÉRIO SUPERIOR**

Edital 054 -Vaga MC-049- Histologia: Pesquisa Translacional

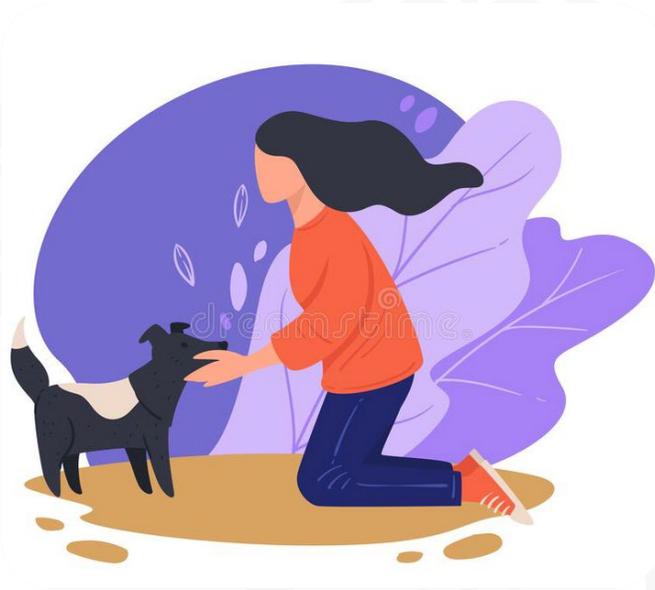
**Prova prática: Nanoplataformas para redução da fertilidade em
animais de rua**

Candidato: Dr. John Lennon de Paiva Coimbra



INTRODUÇÃO

↑
Humanos e cães e gatos não-domiciliados

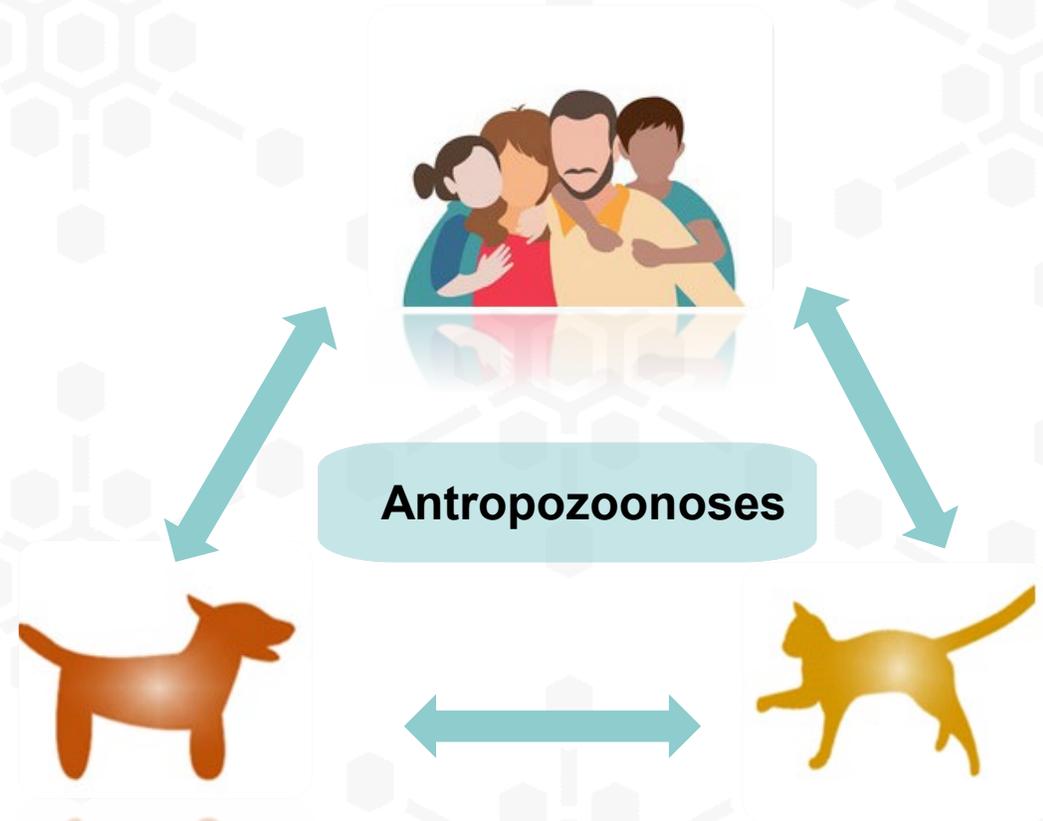


Deamstime.com



Homeless Animals

Stray Dog Stock Photos And Images

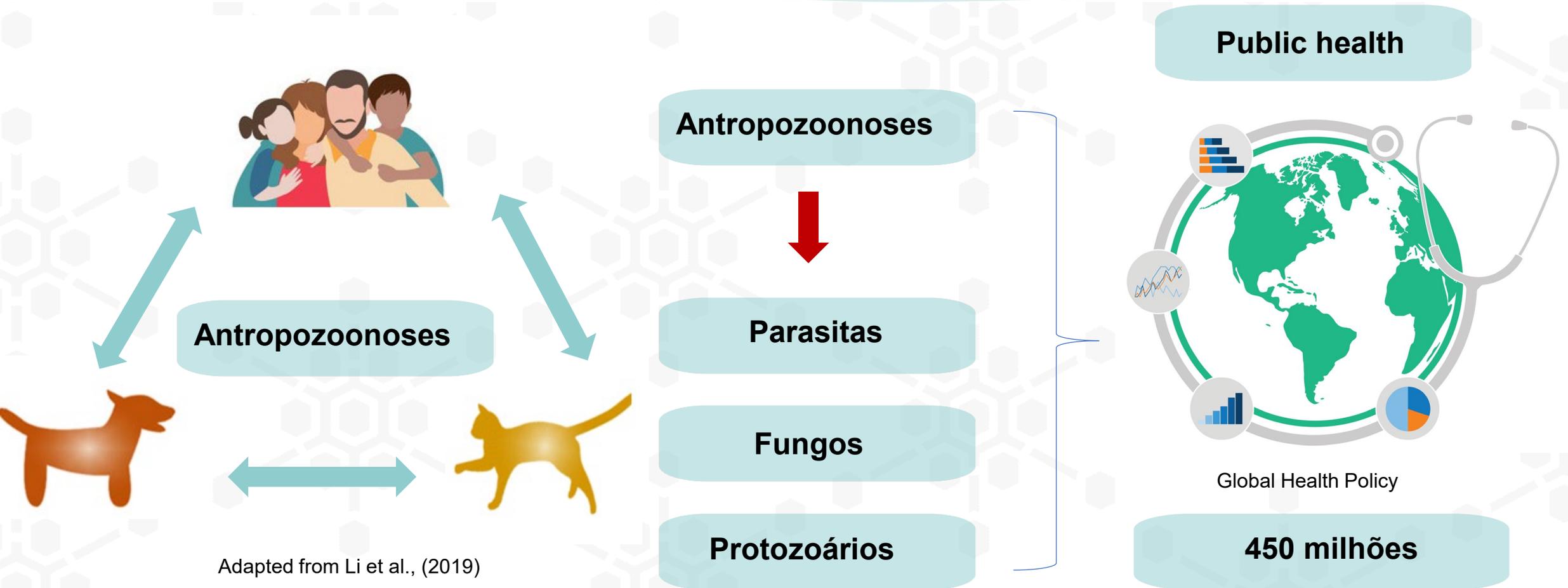


Antropozoonoses

Adapted from Li et al., (2019)

(Chomel, 2011)

INTRODUÇÃO



INTRODUÇÃO

No Brasil

60% das doenças infecciosas humanas

30 milhões de animais

Global Health Policy

Saúde Veterinária



Stray Animals

INTRODUÇÃO

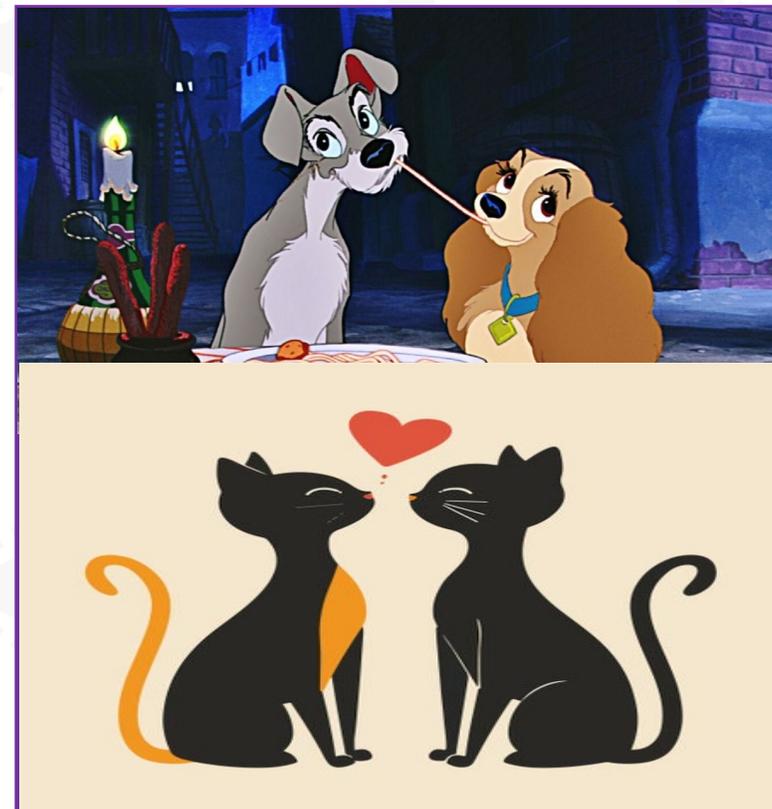
Início > Meio Ambiente > RJ registrou mais de 3 milhões de abandonos de cães e gatos...

Meio Ambiente Rio de Janeiro

RJ registrou mais de 3 milhões de abandonos de cães e gatos em 2023, aponta IBGE

Cães foram a maioria dos animais descartados, com 2,2 milhões de casos; seguidos pelos gatos, 1,2 milhões. No Brasil, o número chega a 40 milhões, de acordo com a OMS. Os números certamente são subnotificados

Por **Patricia Lima** - 26 de março de 2024



Taxa de reprodução

INTRODUÇÃO

Castração cirúrgica



Orquiectomia



Controle populacional

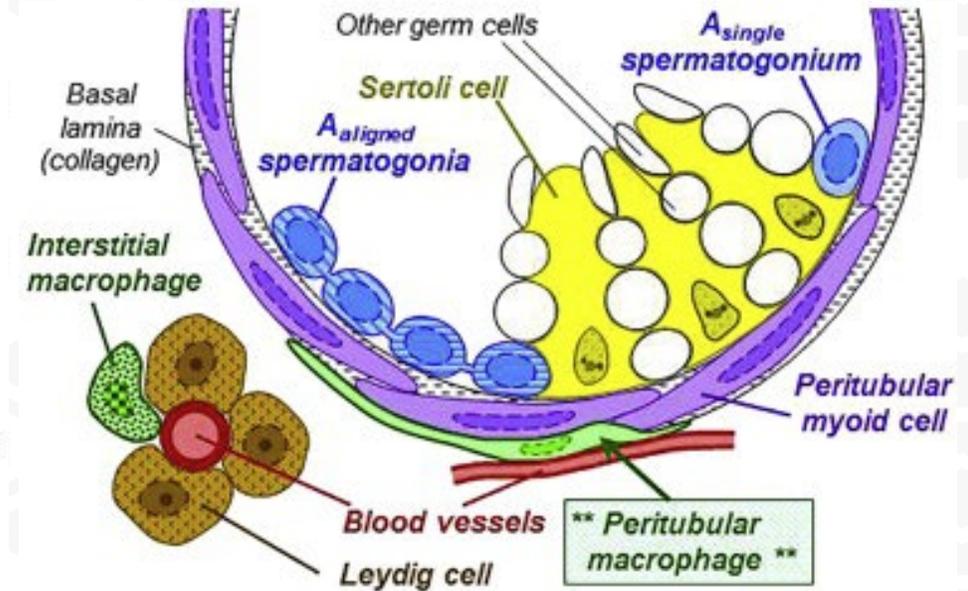
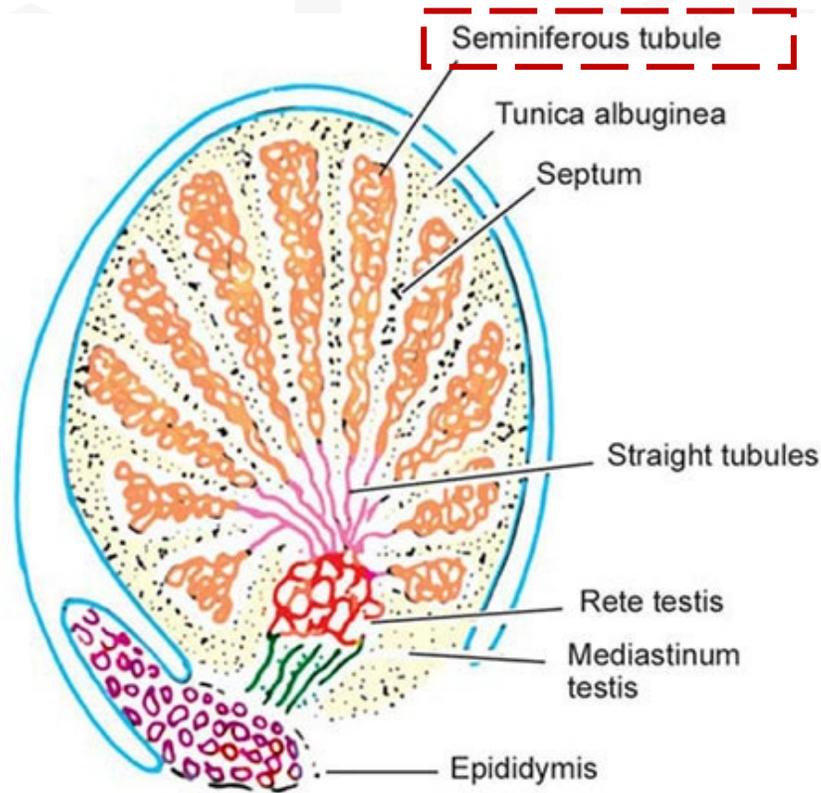
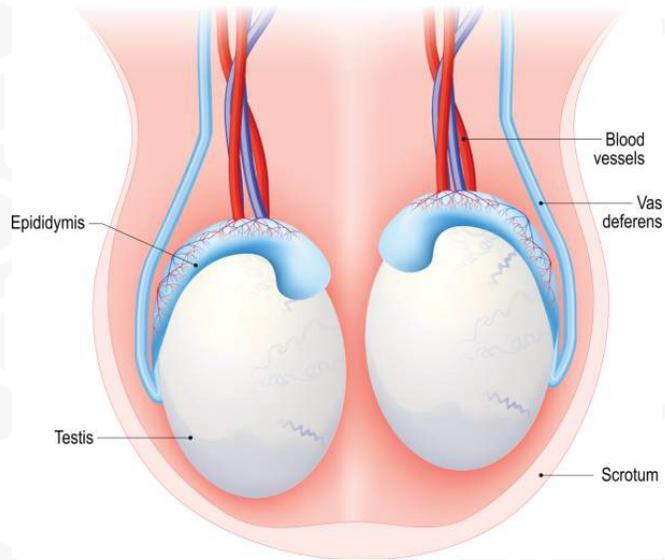
Alto custo financeiro

Pós-operatório



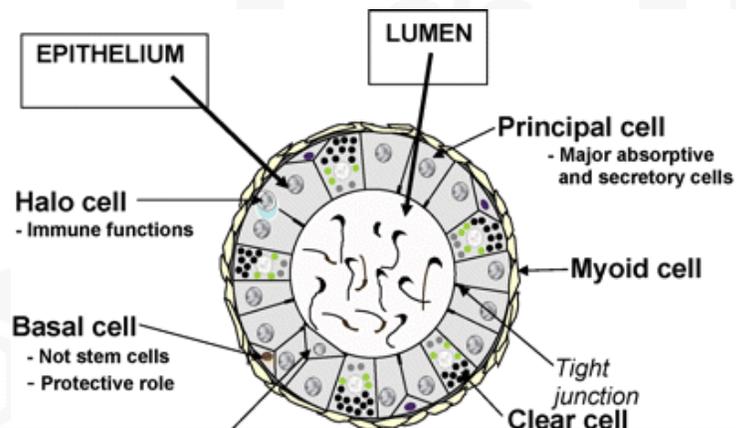
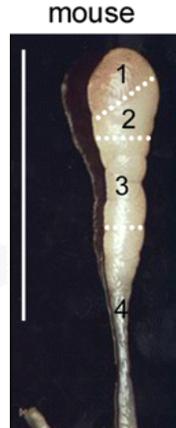
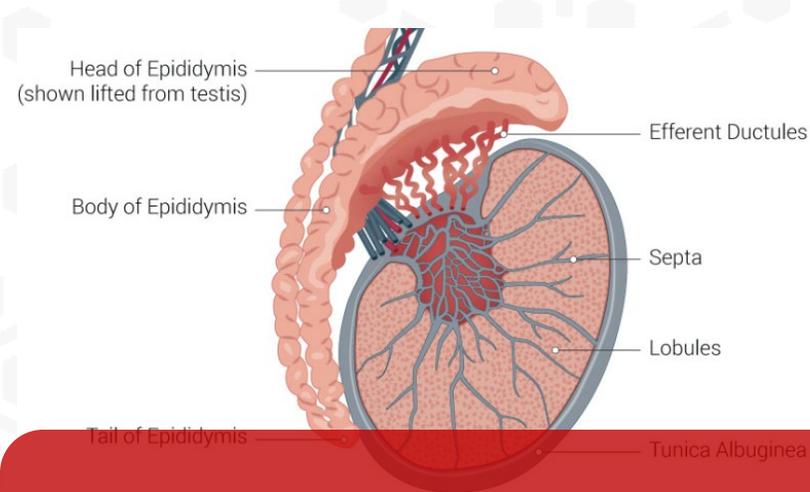
INTRODUÇÃO

Testis



INTRODUÇÃO

Epididymis

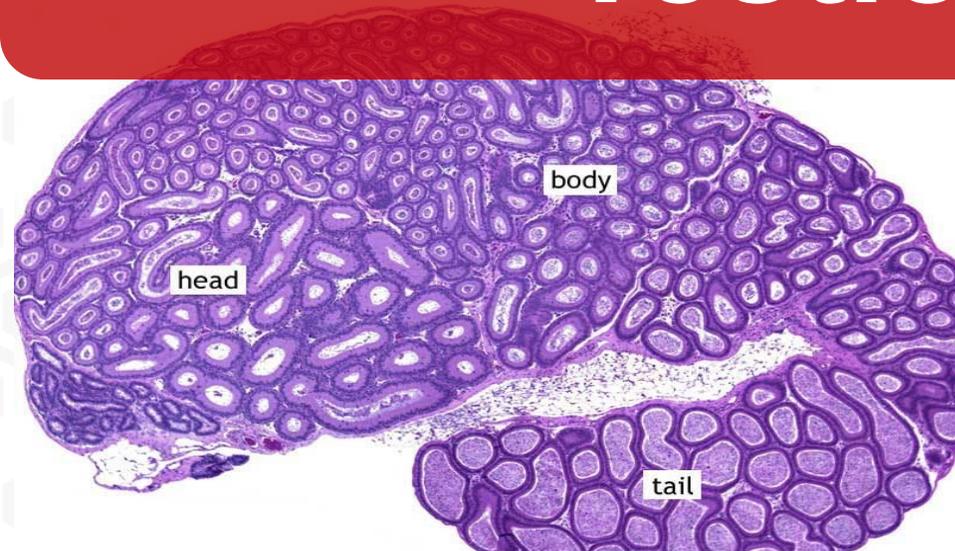


Apical cell
- Proton secreting

- Takes up luminal components
- Role in luminal acidification

Testículo e Epidídimo

Gail A. Cornwall (2009)



Transport

Maturation

Storage

INTRODUÇÃO

Nanotecnologia e diversidade de nanomateriais

Ciências básicas

Ciências aplicadas

Biologia reprodutiva

Esterilização masculina e/ou métodos contraceptivos

INTRODUÇÃO

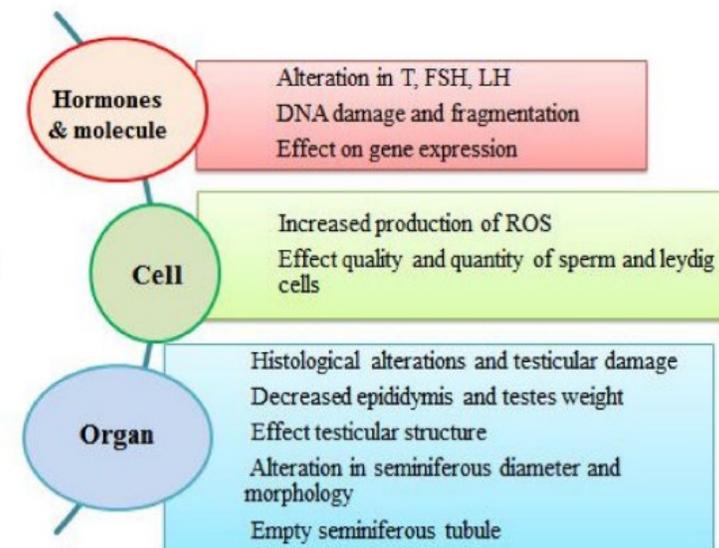
→ **Nanopartículas (NPs)** São uma classe de materiais que incluem substâncias particuladas, que têm uma dimensão menor que 100 nm

→ **NPs** :Apresenta propriedades e características diferentes

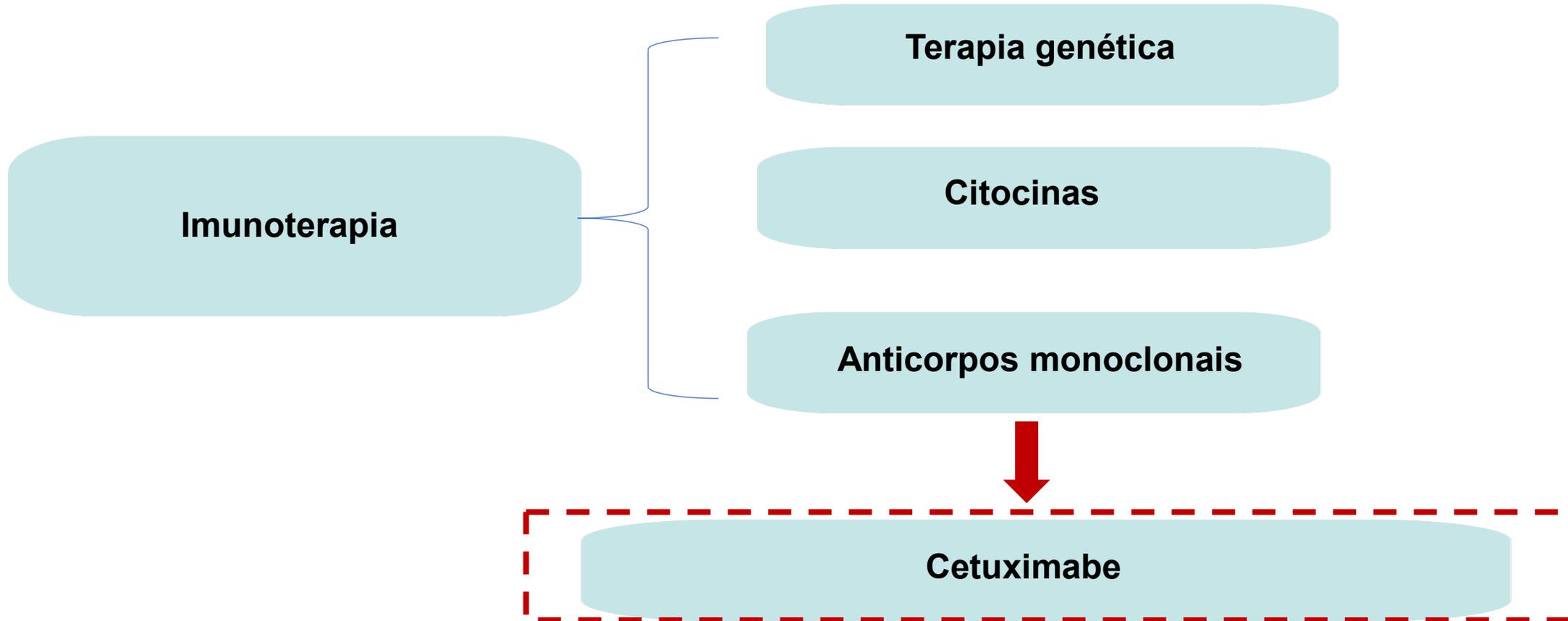
→ **NPs –Ouro (AuNP)**: alta biocompatibilidade, menor toxicidade, estabilidade, resistência à oxidação e facilidade de funcionalização



Toxic



INTRODUÇÃO



INTRODUÇÃO

Cetuximabe

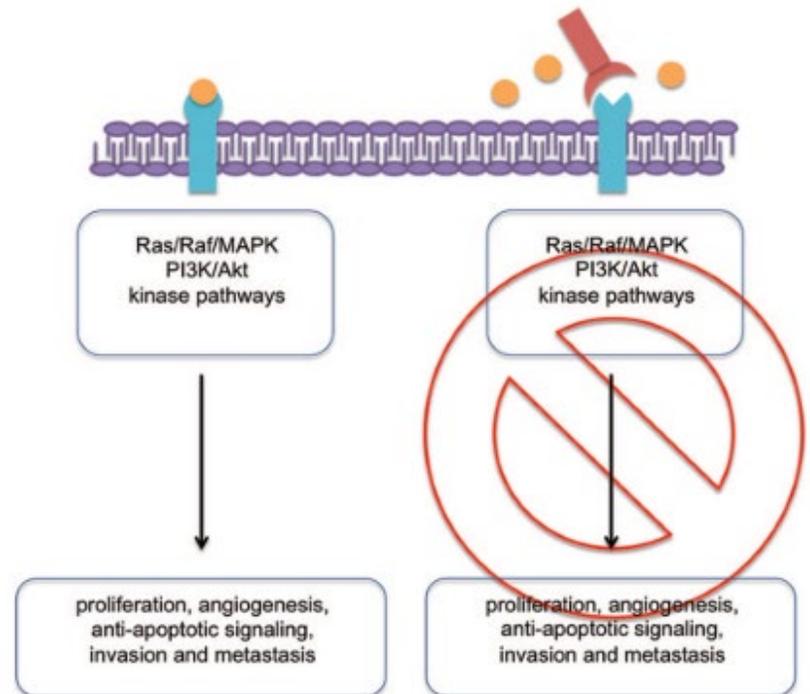
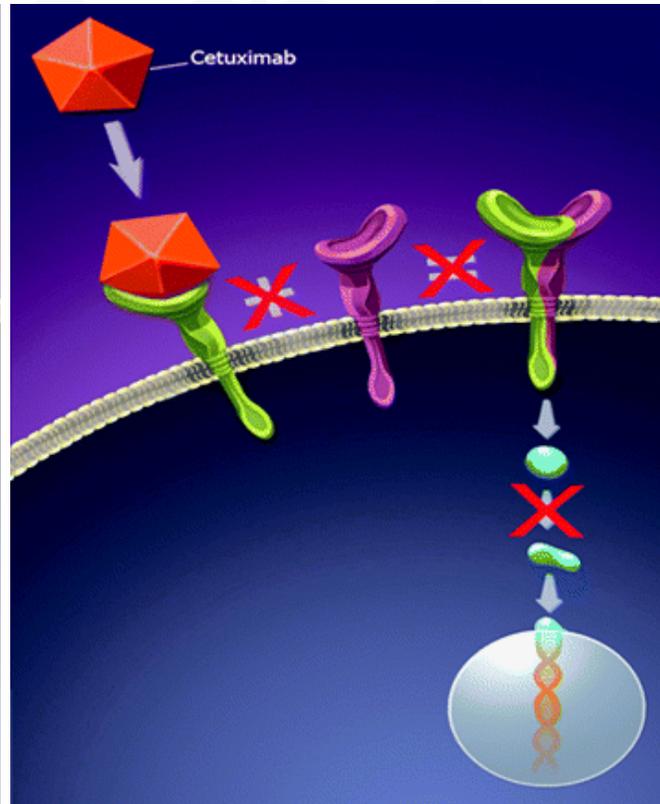
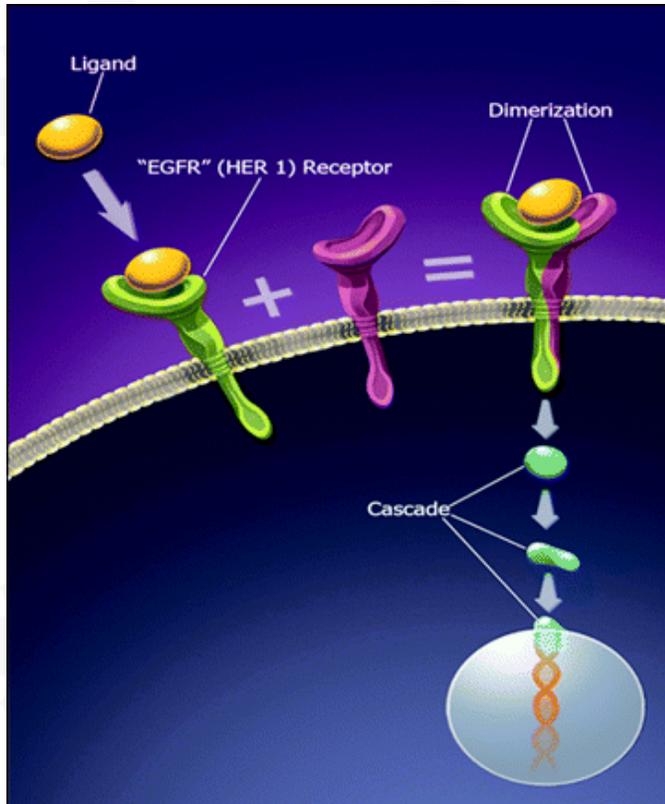


Imunoterapia



Receptor do fator de crescimento
epidérmico (EGFR)

Fator de crescimento epidérmico (EGF)



EGF stimulates rat spermatogonial DNA synthesis in seminiferous tubule segments in vitro

Aida Wahab-Wahlgren^{a,*}, Nina Martinelle^a, Mikael Holst^a, Kirsi Jahnukainen^{a,b}, Martti Parvinen^c, Olle Söder^a

^a Pediatric Endocrinology Unit, Q2-08, Department of Woman and Child Health, Astrid Lindgren Children's Hospital, Karolinska Institute and Hospital, S-171 76 Stockholm, Sweden

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THE JOURNAL OF BIOLOGICAL CHEMISTRY
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Vol. 275, No. 24, Issue of June 16, pp. 18297–18301, 2000
Printed in U.S.A.

Overexpression of Epidermal Growth Factor Induced Hypospermatogenesis in Transgenic Mice*

Received for publication, March 8, 2000
Published, JBC Papers in Press, March 22, 2000, DOI 10.1074/jbc.M001965200

Richard Wing-Chuen Wong^{‡§}, Rainbow Wing-Po Kwan[‡], Priscilla Hoi-Shan Mak[‡], Kingston King-Lun Mak[‡], Mai-Har Sham[¶], and Siu-Yuen Chan^{‡¶}

From the Departments of [‡]Paediatrics and [¶]Biochemistry, The University of Hong Kong, Queen Mary Hospital, Hong Kong

The *in vivo* role of epidermal growth factor (EGF) is not well defined even though its effects on culture cells were well studied. To understand the developmental, physiological, and pathological roles of EGF, we have generated transgenic mice widely expressing human EGF with the use of the β -actin promoter. EGF and transforming growth factor α (TGF α) bind with equal affinity to the EGF receptor, a transmembrane tyrosine kinase, to trigger various biological responses. EGF and TGF α signaling are implicated in the development of the reproductive system. EGF also plays a physiological role in spermatogenesis. Removal of the salivary gland in pa-

some unexplained cases of male infertility, in particular oligospermia.

Transforming growth factor α (TGF α) is biologically and structurally related to EGF. From the expression patterns of EGF, TGF α , and their common receptor, TGF α was suggested to act during early pubertal stages to support the active somatic cell growth in testis. However, the role of TGF α in spermatogenesis is not evident (7, 8). EGF is involved in differentiation of the male reproductive system through modulation of androgen receptor activity (9). Various *in vitro* studies also showed that EGF affects the functions of Sertoli cells (10) and

Original Article

Effects of epidermal growth factor on sperm content and motility of rats with surgically induced varicoceles

Dong Cheng, Xin-Min Zheng, Shi-Wen Li, Zhi-Wei Yang, Li-Quan Hu

Research Center of Urology and Andrology, Zhongnan Hospital, Wuhan University, Wuhan 430071, China

Abstract

Aim: To investigate the effect of epidermal growth factor (EGF) on the sperm content and motility of the varicoceled rats. **Methods:** Forty-eight male Wistar rats were randomly divided into five groups. Experimental varicocele was induced by partial ligation of the left renal vein in the varicocele, the varicocele repair, the varicocele with EGF and the varicocele repair with EGF groups, whereas the control group only received a sham induction of varicocele. Surgical repair of varicocele was performed 4 months later in the varicocele repair and varicocele repair with EGF groups. EGF administration was performed daily by s.c. injection in the varicocele with EGF and varicocele repair with EGF groups at the dose of 10 μ g/(kg-day) from the next day of the second surgery. One month later, all animals were

INTRODUÇÃO

Proliferação de
espermatogônias

in vitro



Esperma



Melhoria da
motilidade



(He et al., 2009; Yan et al., 1998)

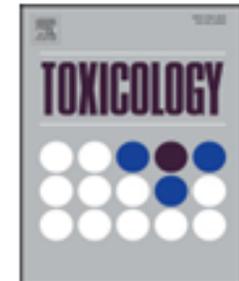
INTRODUÇÃO



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

Toxicology

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



Gold nanoparticle intratesticular injections as a potential animal sterilization tool: Long-term reproductive and toxicological implications

John L.P. Coimbra^a, Graziela de P.F. Dantas^a, Lídia M. de Andrade^b, Marcos.R.G. Brener^a, Pedro I.M. Viana^a, Roberta.A. Lopes^c, Daniele. O.G Gontijo^d, Luiz.O.G. Ervilha^e, Mirian.Q. Assis^e, Luciola.S. Barcelos^d, Raphael. E. Szawka^c, Débora C. Damasceno^f, Mariana Machado-Neves^e, Ana P. Mota^g, Guilherme M.J. Costa^{a,*}

^a Laboratory of Cellular Biology, Department of Morphology, Institute of Biological Sciences, Federal University of Minas Gerais, Belo Horizonte, MG, Brazil

^b Laboratory of Nanomaterials, ICEX/UFMG, Nanobiomedical Research Group, Belo Horizonte, MG, Brazil

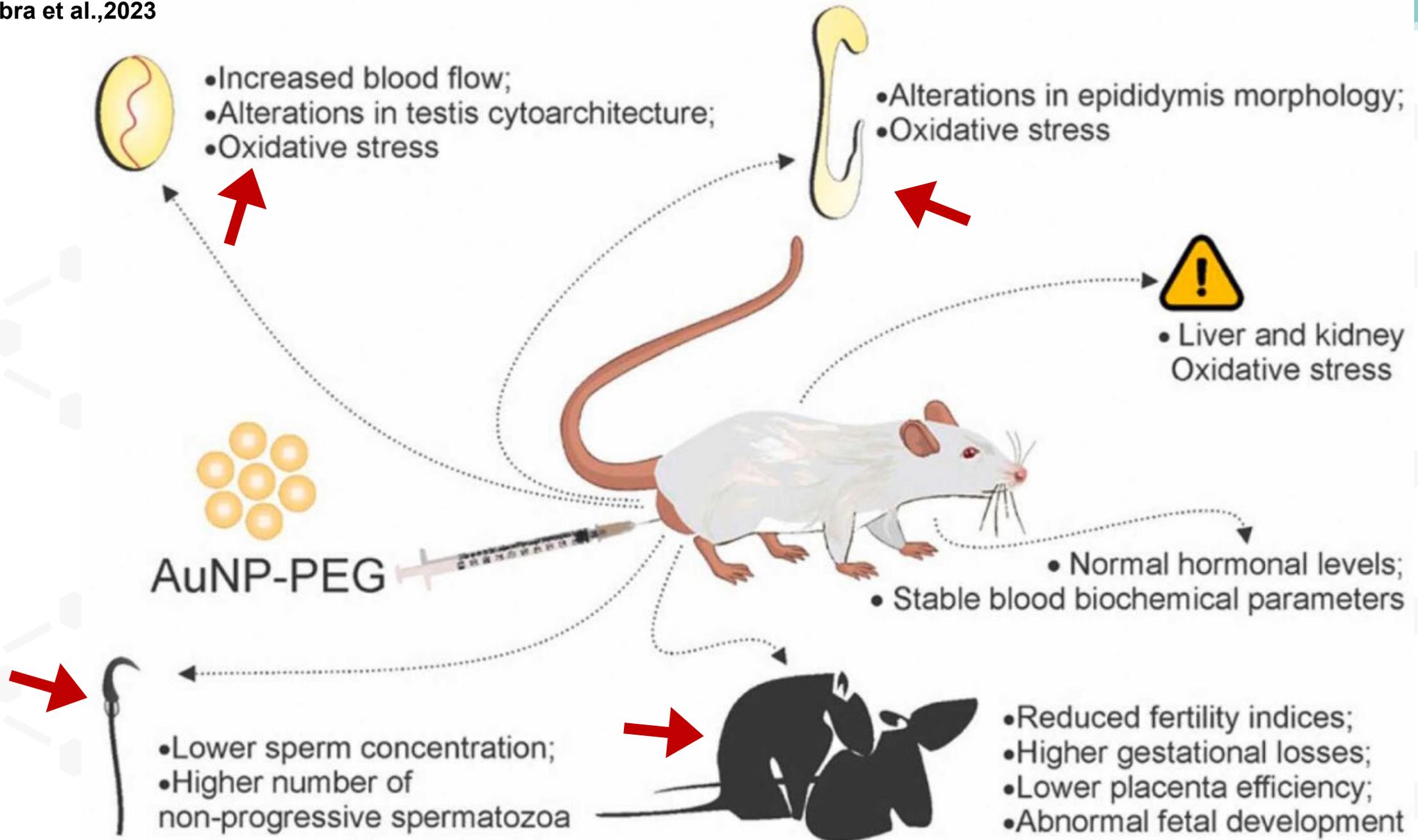
^c Laboratory of Endocrinology and Metabolism, Department of Physiology and Pharmacology, Institute of Biological Sciences, Federal University of Minas Gerais, Belo Horizonte, MG, Brazil

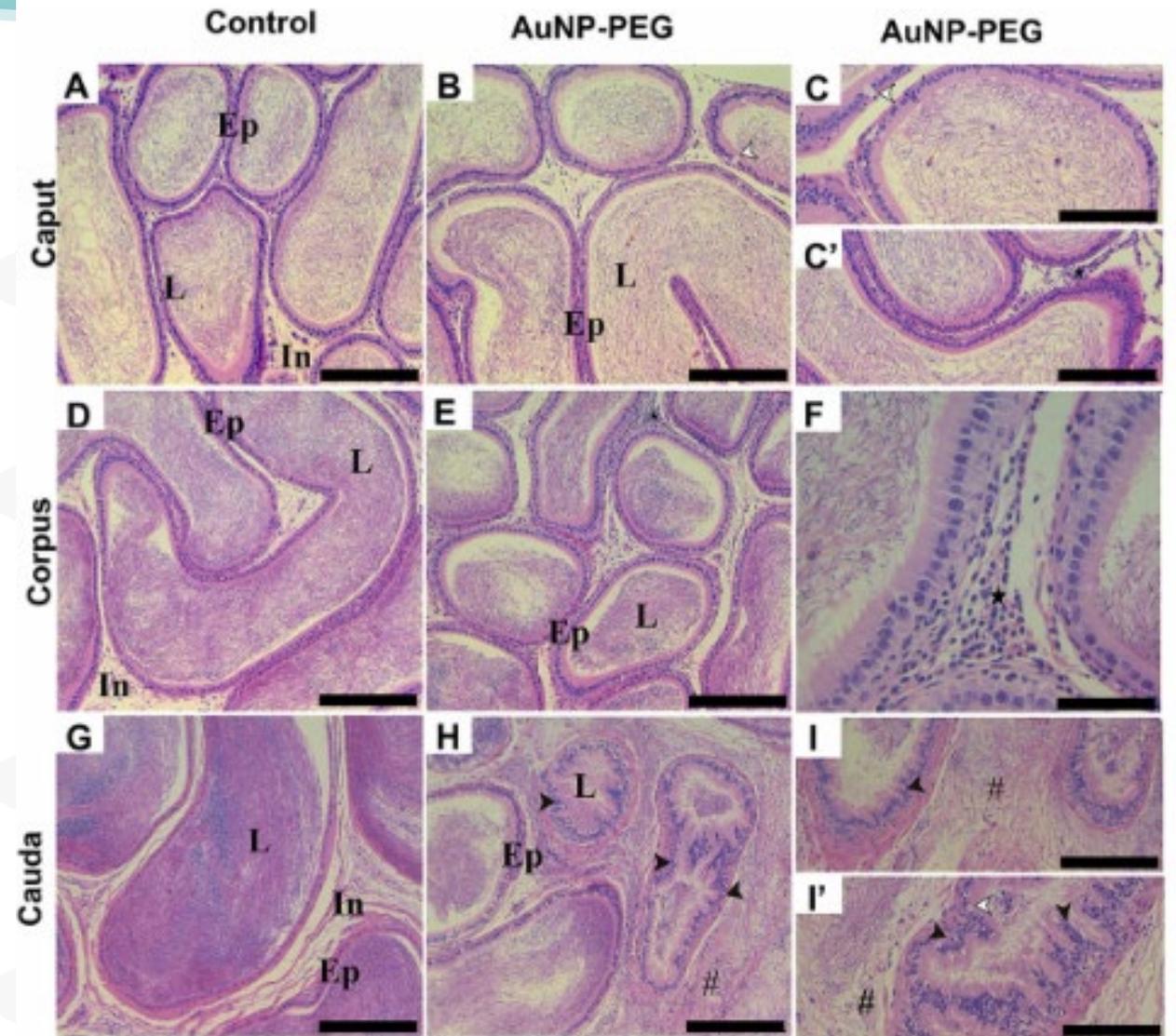
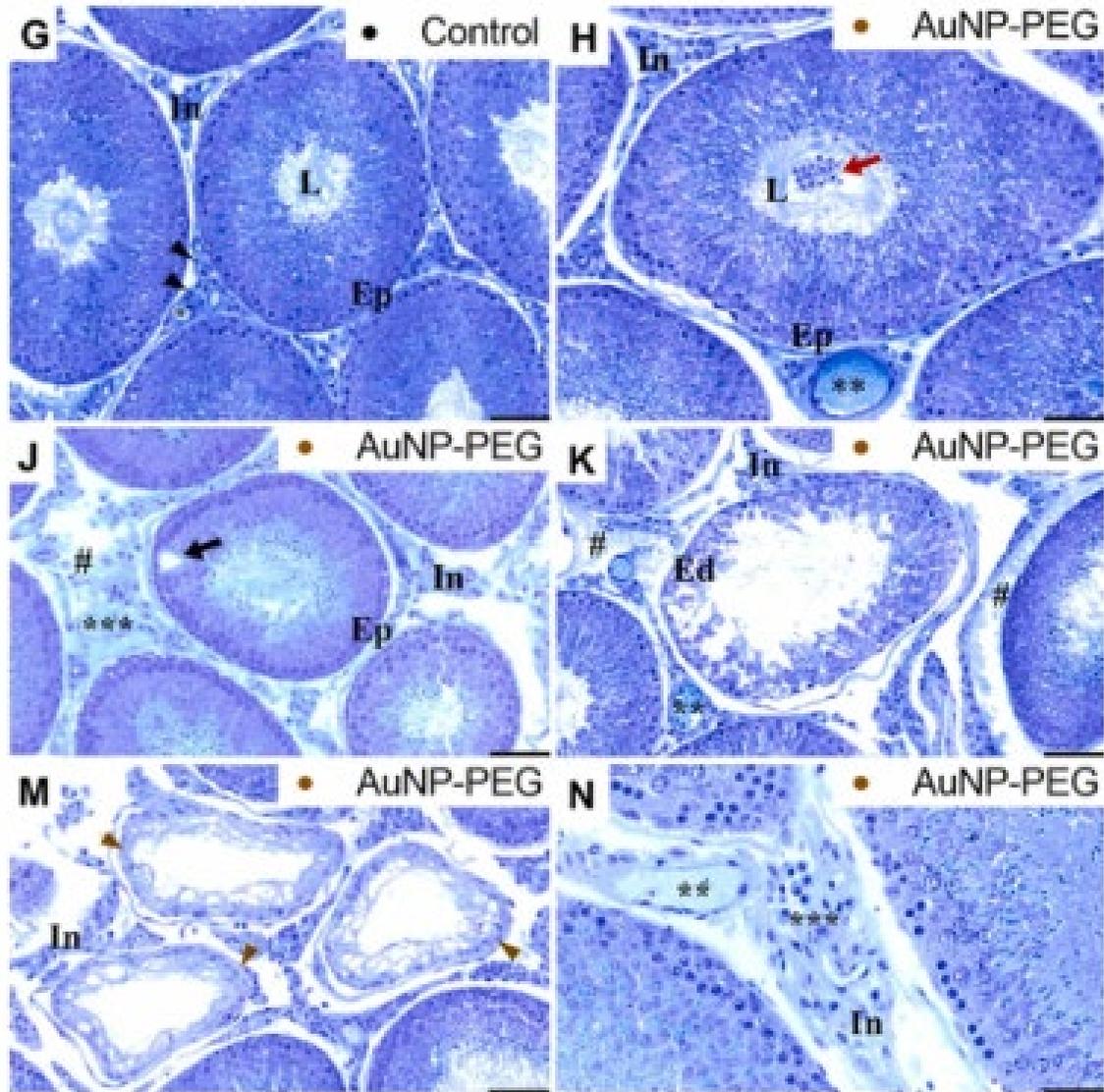
^d Department of Physiology and Biophysics, Institute of Biological Sciences, Federal University of Minas Gerais, Belo Horizonte, MG, Brazil

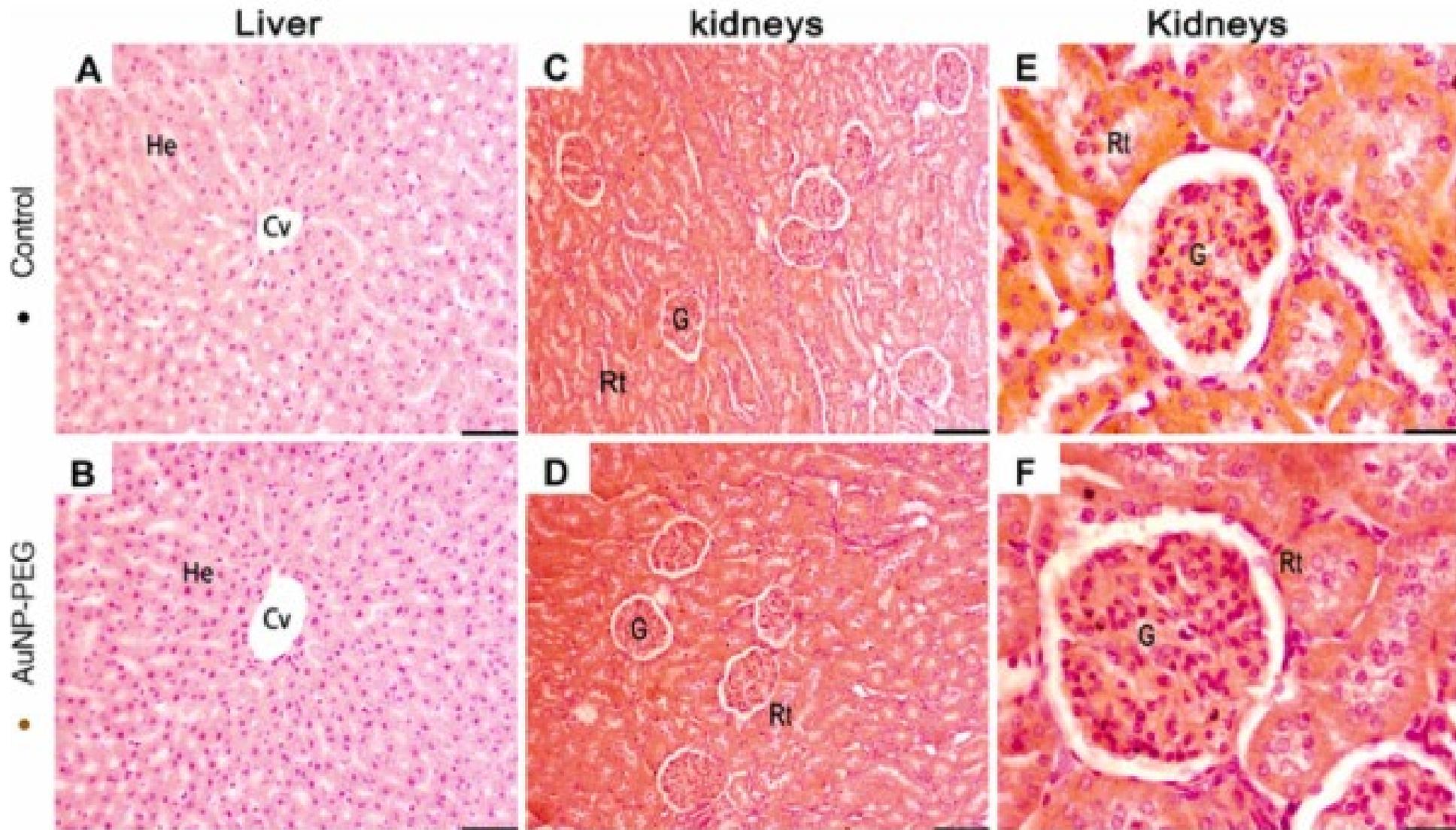
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^g Clinical Hematology Laboratory, Faculty of Pharmacy, Biological Sciences, Federal University of Minas Gerais, Belo Horizonte, MG, Brazil



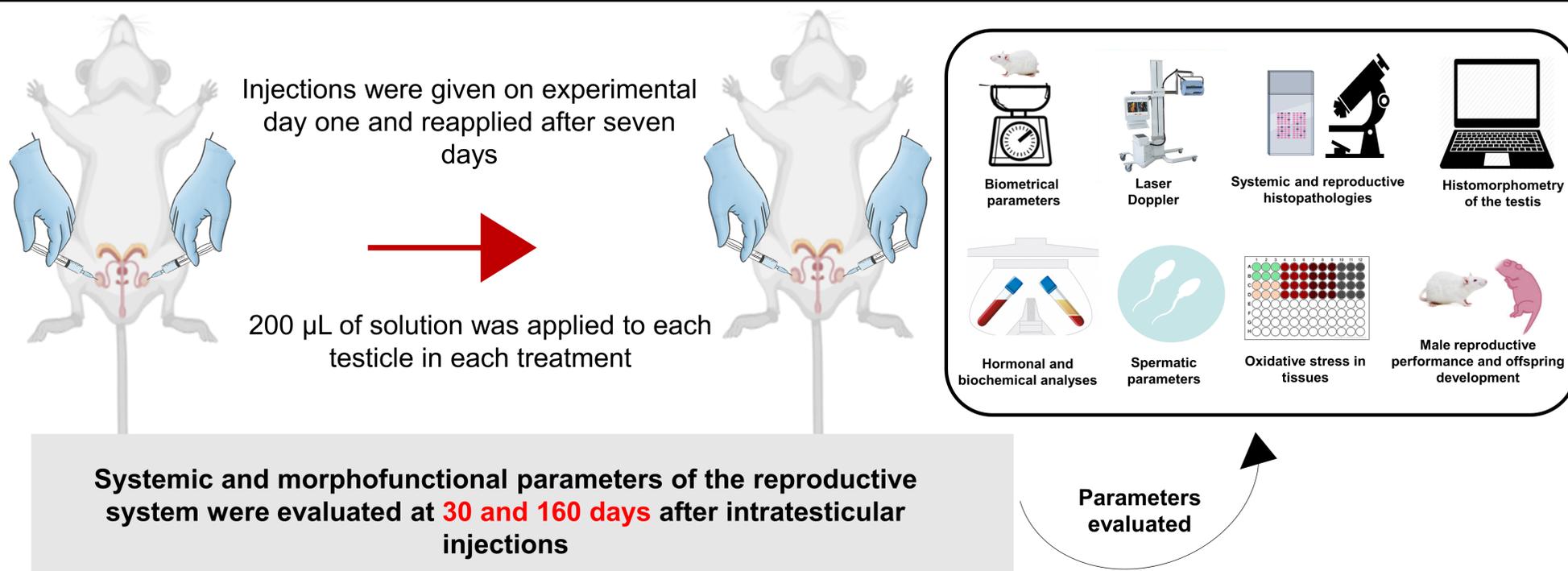




2° Paper: Efeitos de curto e longo prazo de injeções intratesticulares de nanopartículas de ouro, Cetuximabe e Nanocomplexo Cetuximabe-AuNP na Biologia Reprodutiva Masculina

A

ADULT WISTAR RATS RECEIVED BILATERAL INTRATESTICULAR INJECTIONS OF NaCl (CONTROL), CETUXIMAB, AUNP AND NANOCOMPLEX

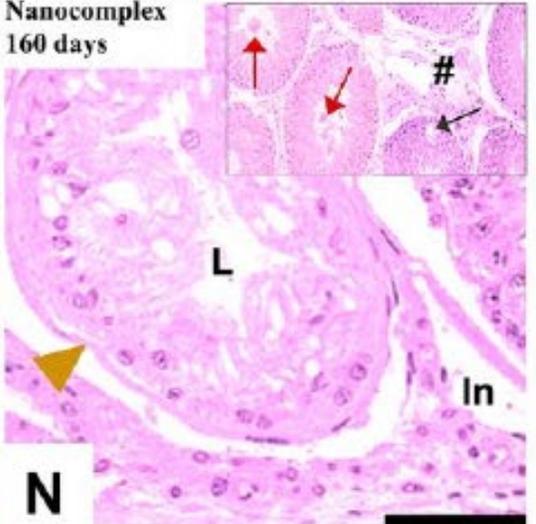
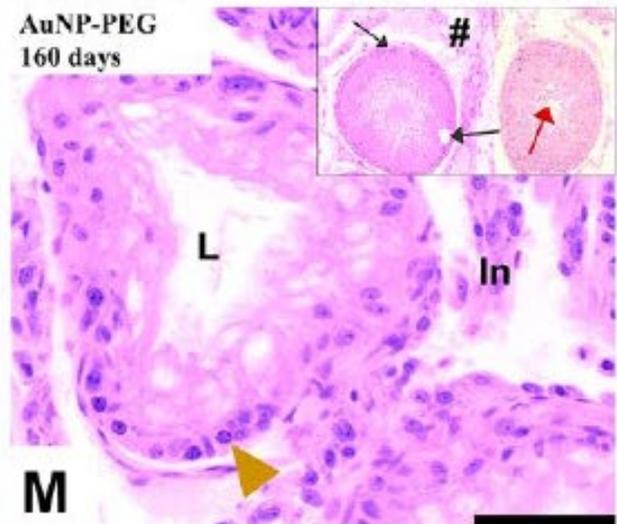
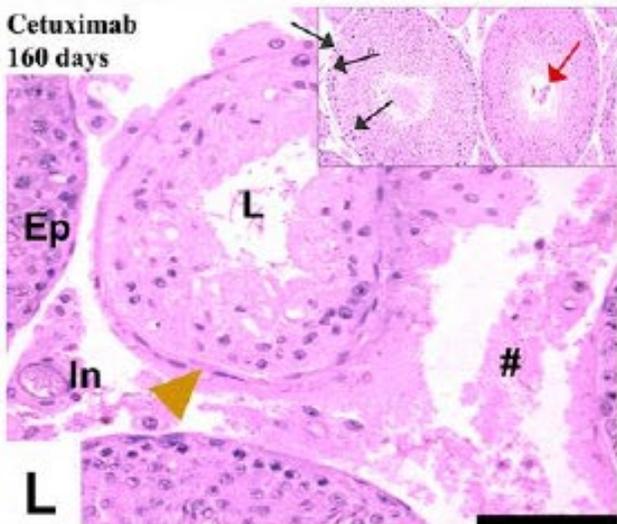
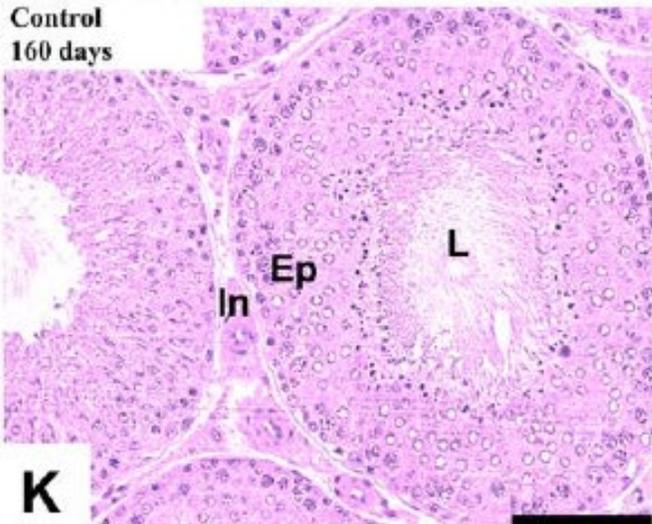
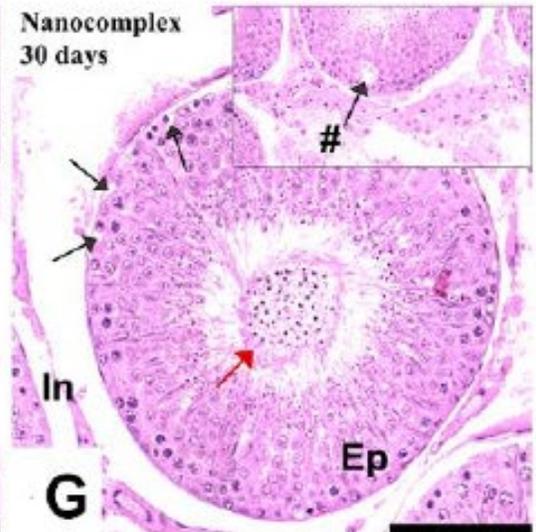
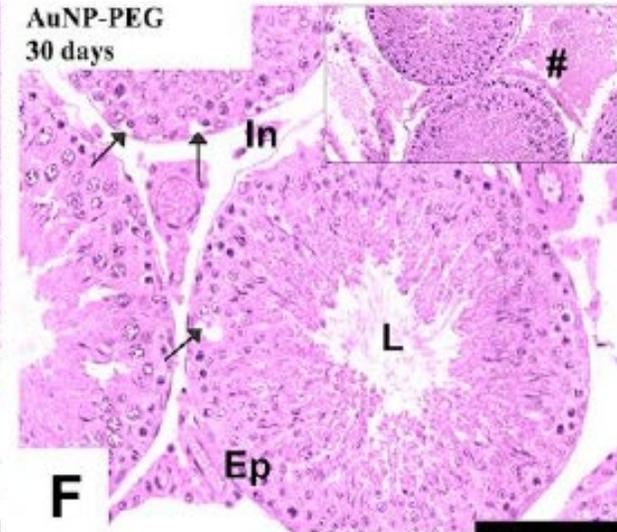
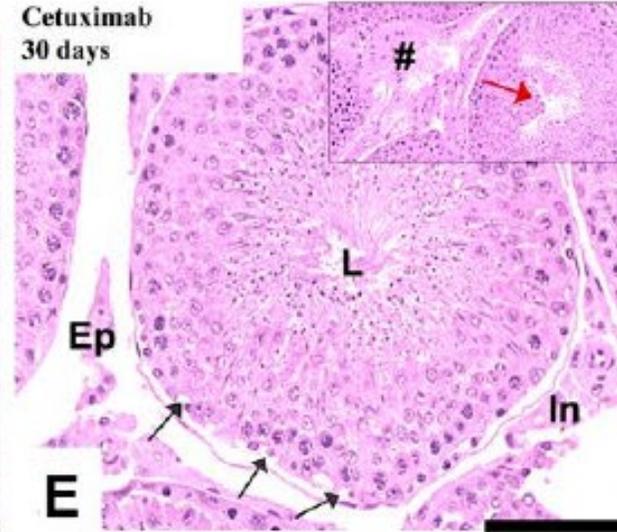
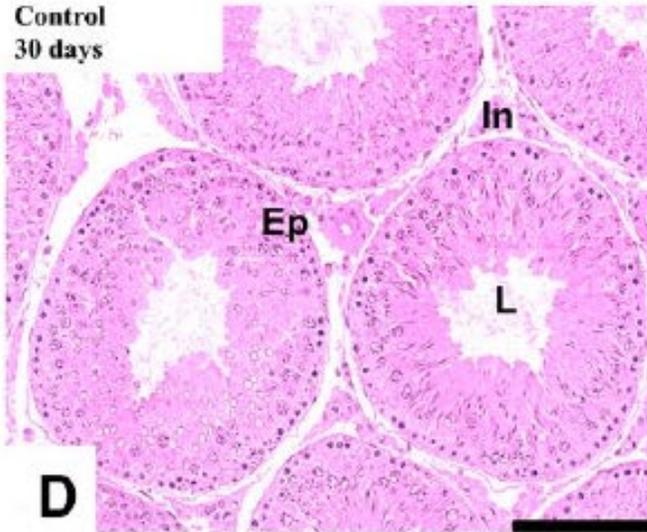


AuNP (64 μ g /mL)

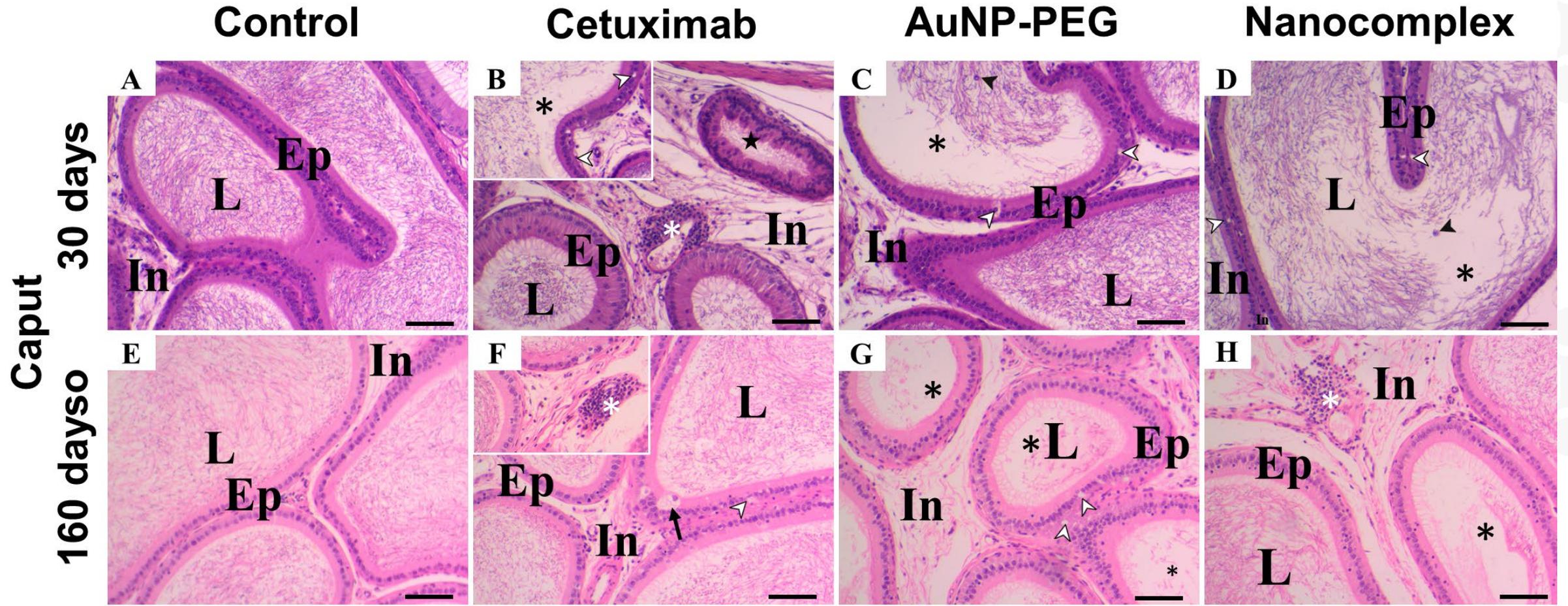
Cetuximab (5mg/ml)

Nanocomplex (64 μ g /mL+ 200 μ g)

RESULTADOS: HISTOPATOLOGIA TESTICULAR



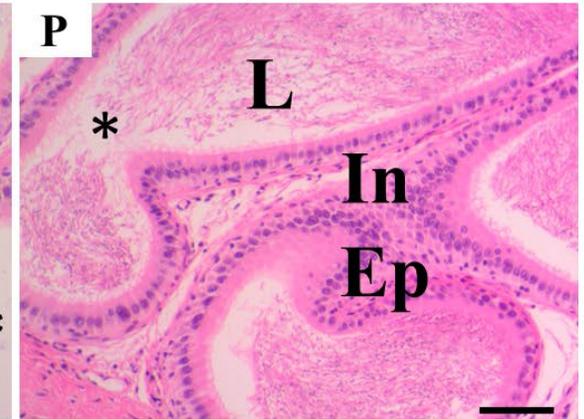
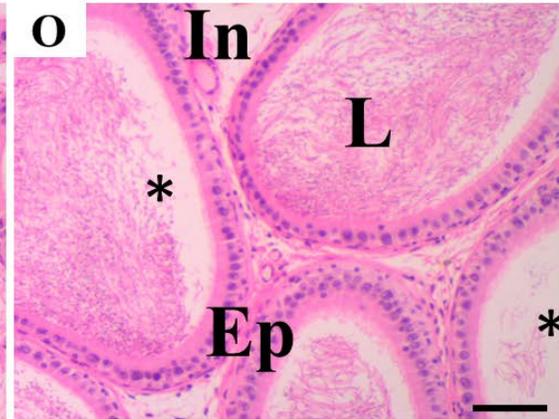
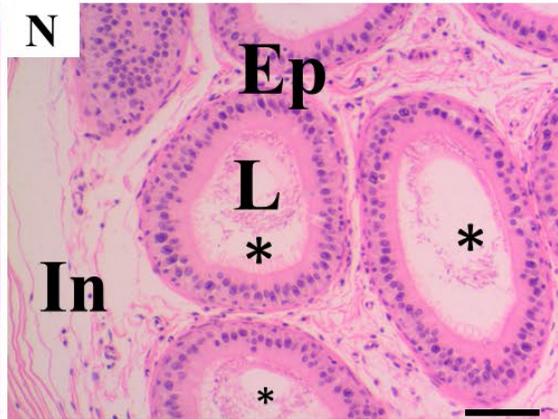
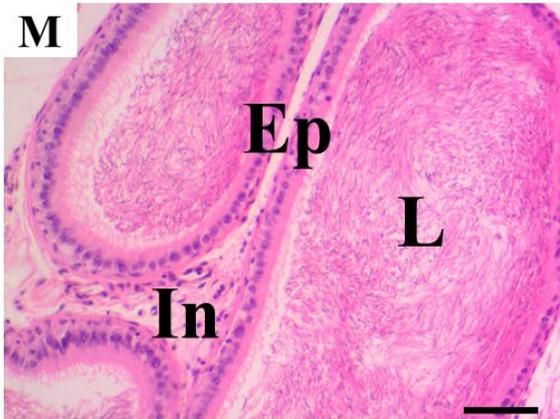
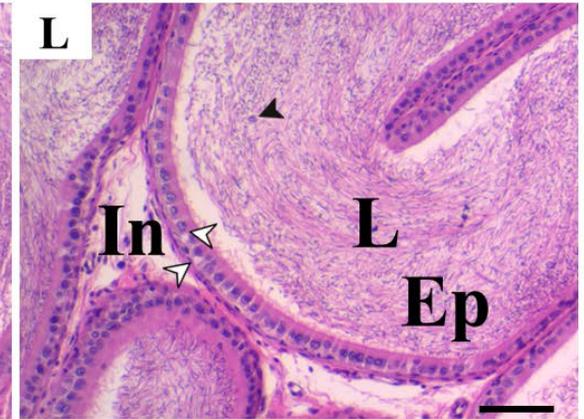
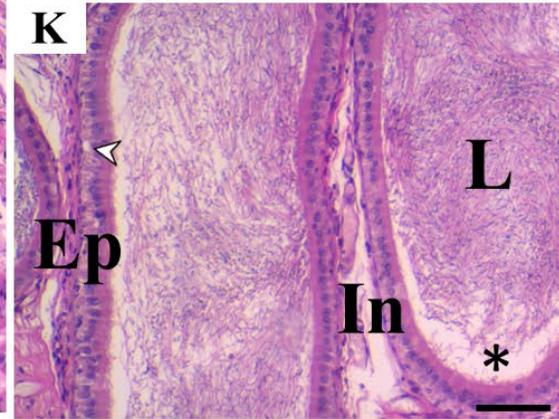
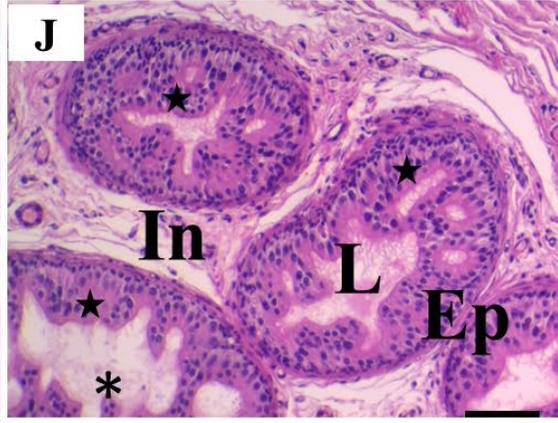
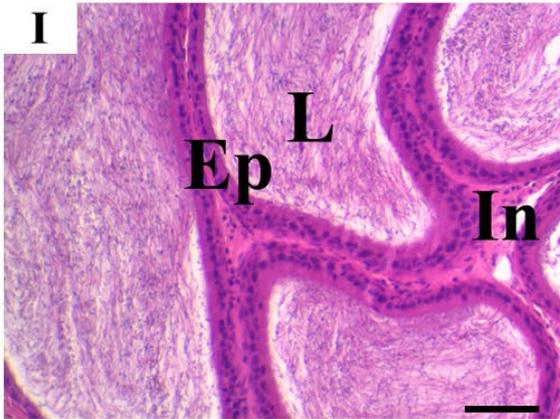
RESULTADOS: HISTOPATOLOGIA DO EPIDÍDIMO



RESULTADOS: HISTOPATOLOGIA DO EPIDÍDIMO



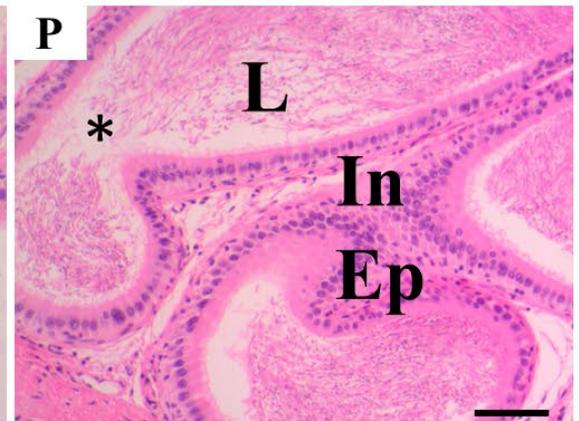
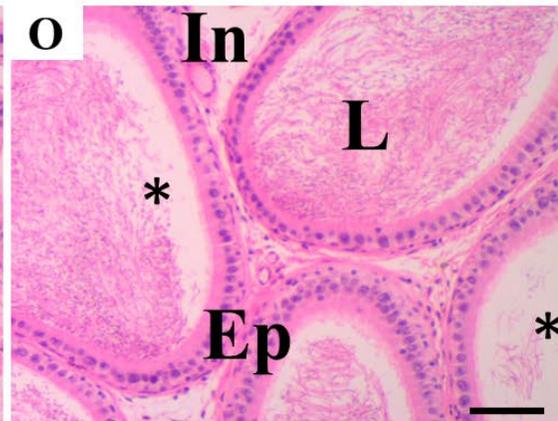
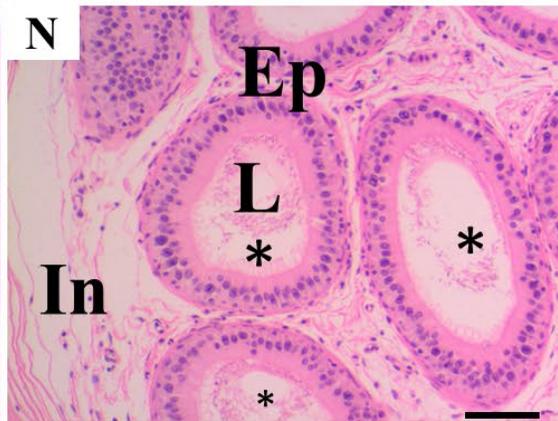
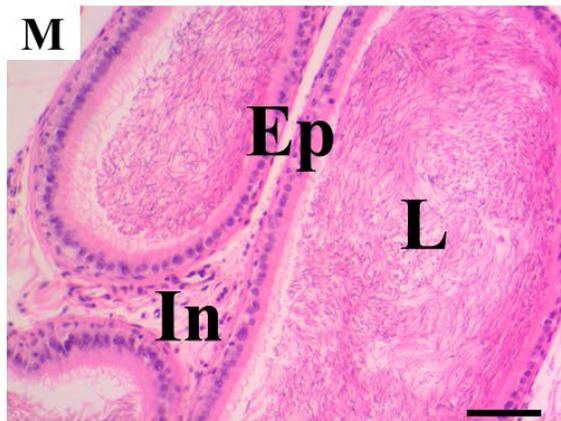
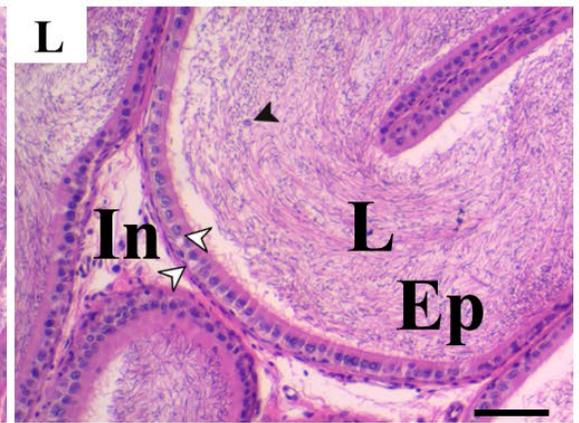
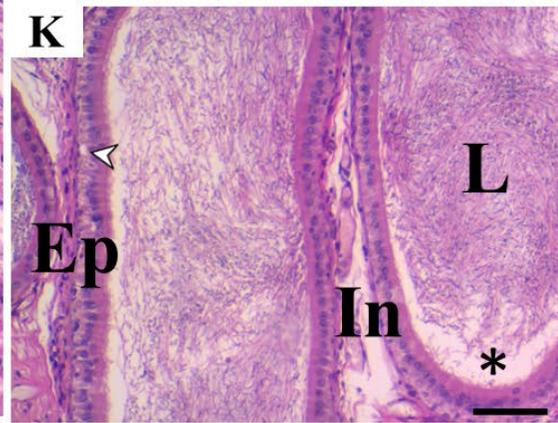
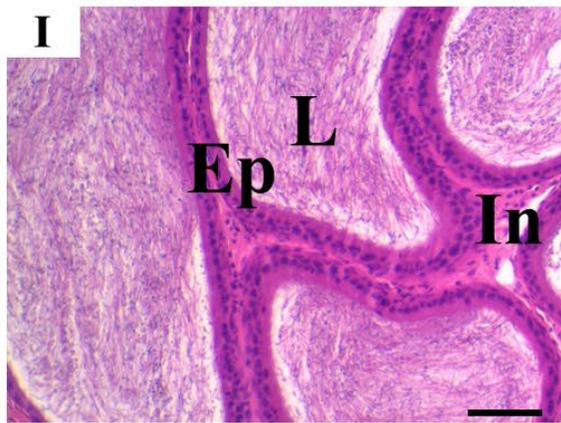
Corpus
30 days
160 days



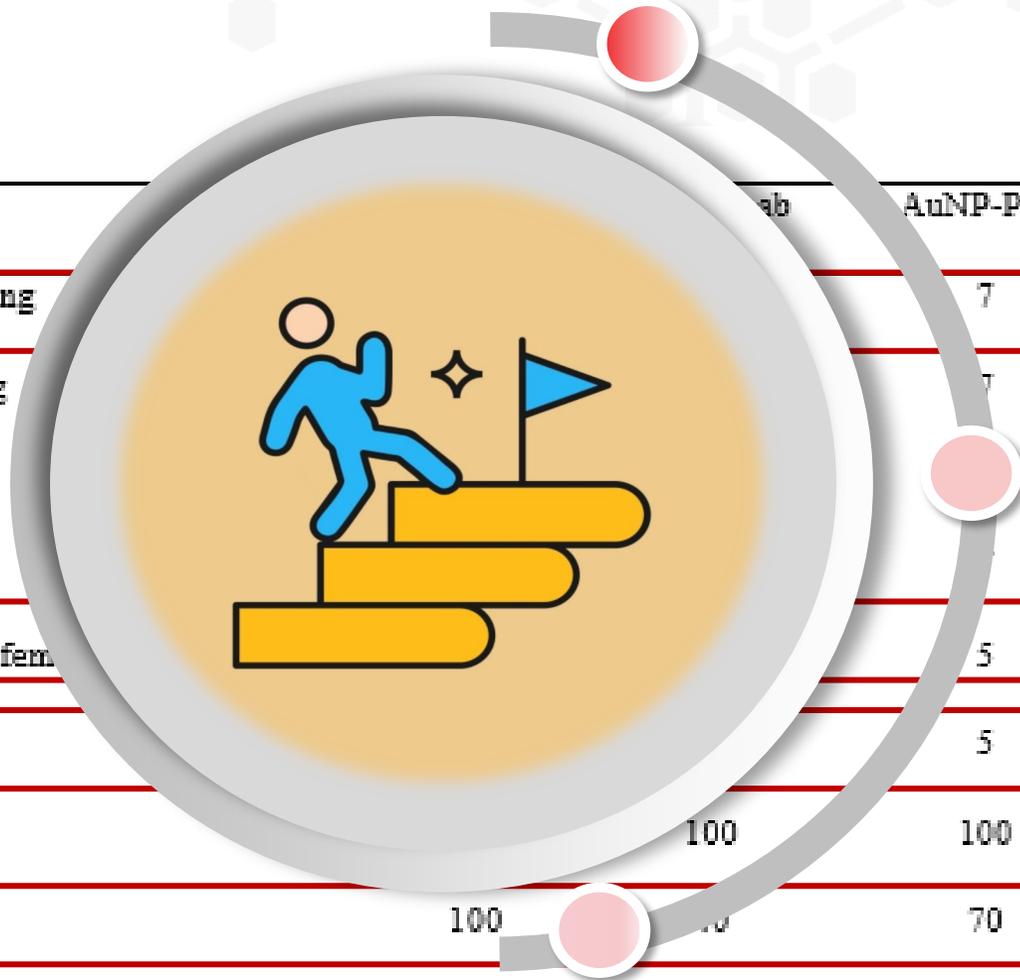
RESULTADOS: HISTOPATOLOGIA DO EPIDÍDIMO



Corpus
30 days
160 days



RESULTADOS: ENSAIO DE FERTILIDADE MASCULINA



50x

Variables	Lab	AuNP-PEG	Nanocomplex
Number of females in the beginning	7	7	7
Number of males in the beginning	7	7	7
Number of males mated ^a	7	7	7
Number of females mated ^a	7	7	7
Number of males who conceived females	5	4	4
Number of pregnant females	5	4	4
Male mating index (%) ^a	100	100	100
Male fertility index (%) ^a	100	70	60

Perspectivas e campo de estudo

**Novas nanoplataformas
metálicas**

**Injeções Sistêmica
Nanocomplexo**

**Animais
Pre-púbere e púbere**

Femêas

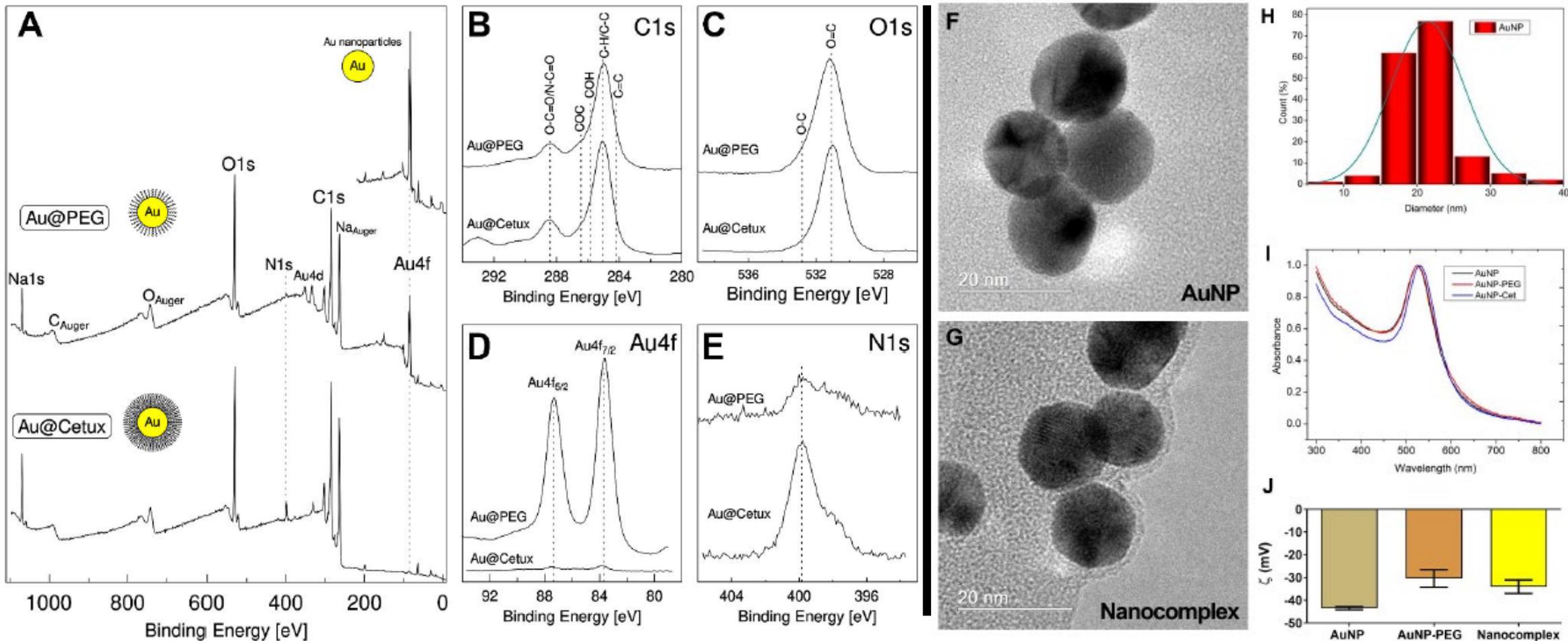


Objetivos de pesquisa no departamento

**Utilização de
nanoplataformas para
esterilização em animais**



Caracterização das AuNPs funcionalizadas e não com cetuximabe



MATERIAL E METODOS



Ratos Wistar 70 dias de idade

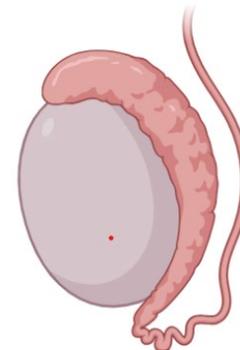


Controle (0.9% NaCl)



Nanoplateforma
(AuNP+Cetuximabe)

Aplicação sistêmica



Biometria



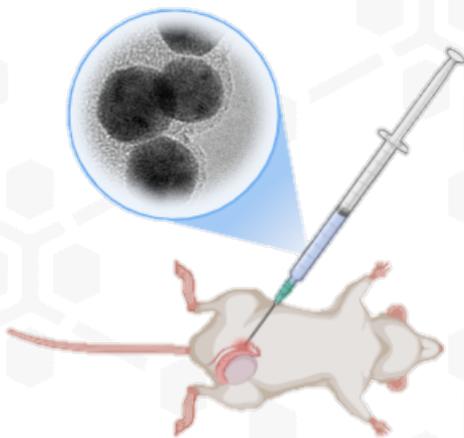
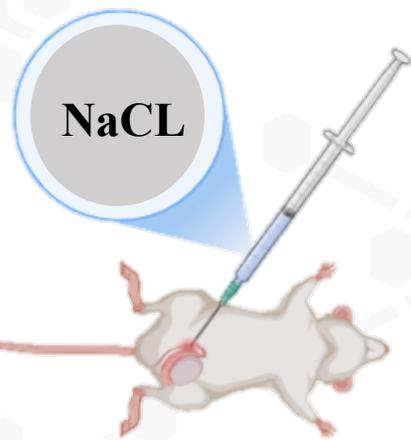
Coleta de Material e
início das análises

Coleta de Material e
início das análises

MATERIAL E METODOS

Ratos Wistar 70 dias de idade

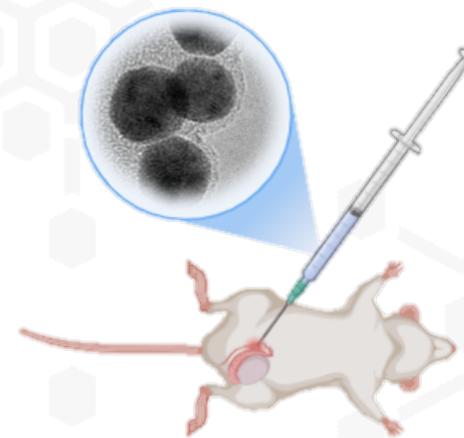
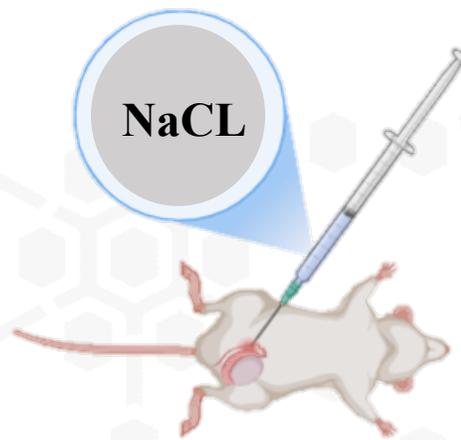
A



Controle (0.9% NaCl)

Nanoplateforma
(AuNP+Cetuximabe)

B



Controle (0.9% NaCl)

Nanoplateforma
(AuNP+Cetuximabe)

Coleta de Material e inicio das analises

MATERIAL E METODOS



Ratos Wistar 70 dias de idade

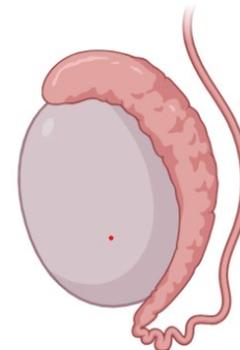


Controle (0.9% NaCl)



Nanoplateforma
Metálica

Aplicação sistêmica



Biometria



Coleta de Material e
inicio das analises

Coleta de Material e
inicio das analises

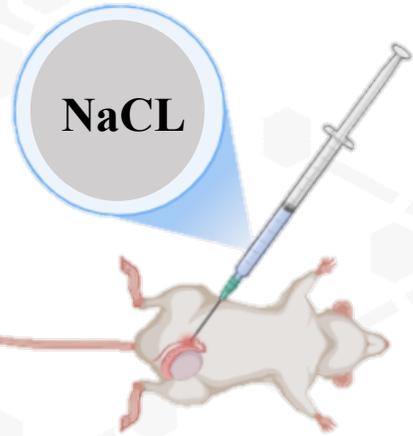
MATERIAL E METODOS

Ratos Wistar 70 dias de idade

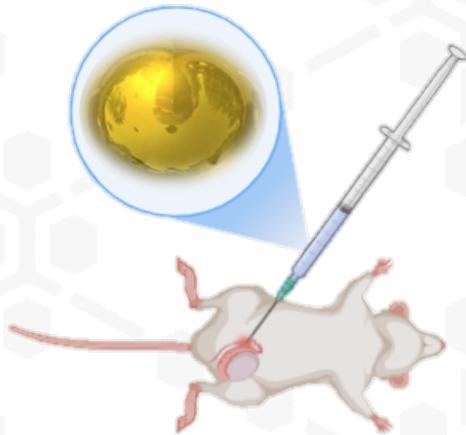
A



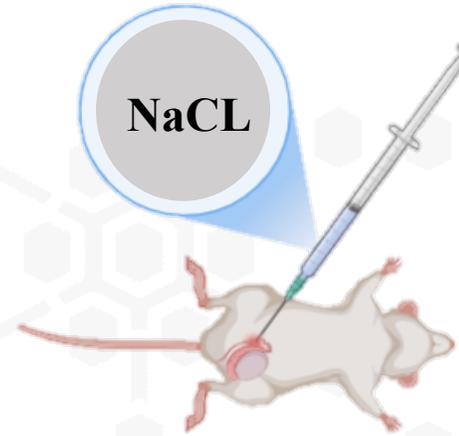
B



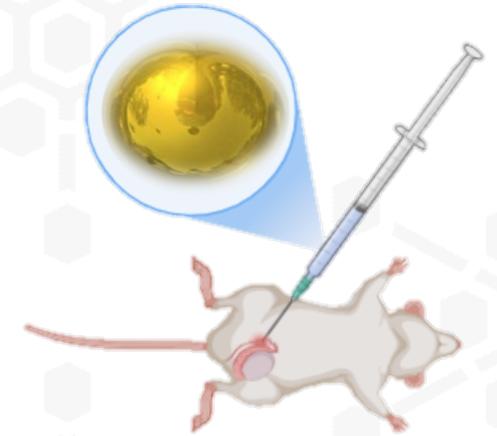
Controle (0.9% NaCl)



Nanoplataforma metálica



Controle (0.9% NaCl)

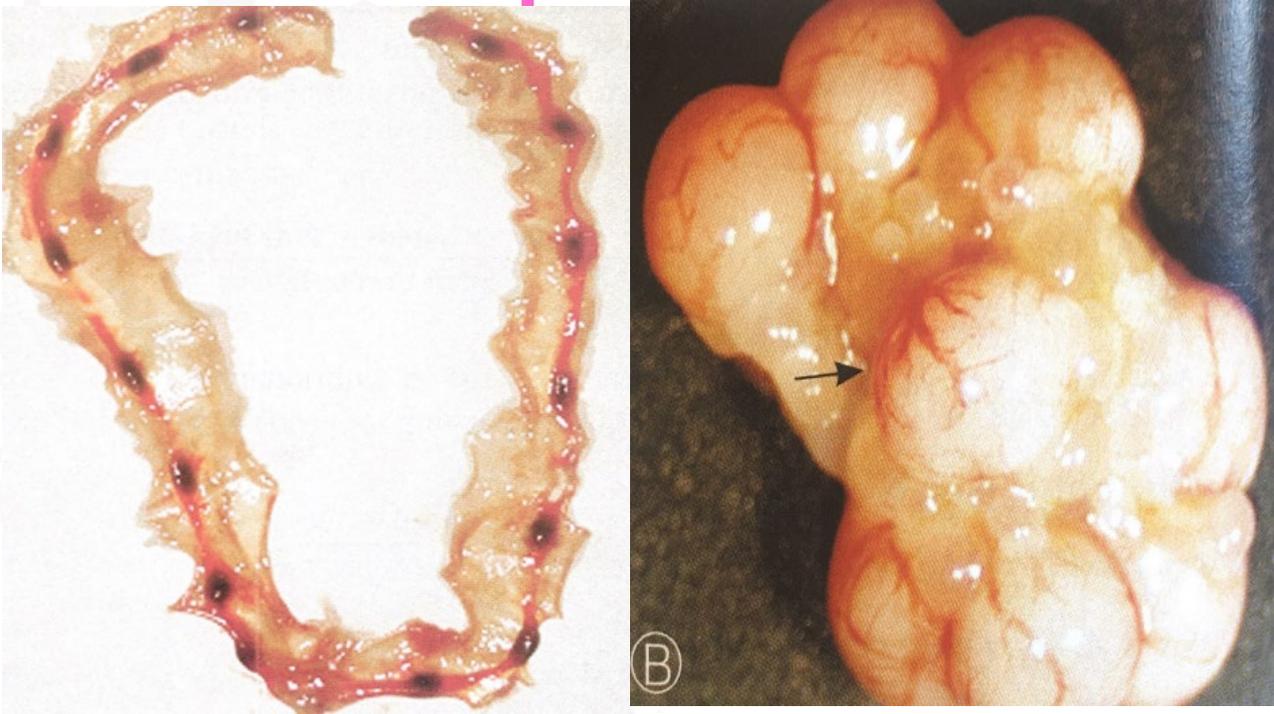


Nanoplataforma metálica

Coleta de Material e inicio das análises

MATERIAL AND METHODS

Acasalamento natural femea em estro



GD0

GD21



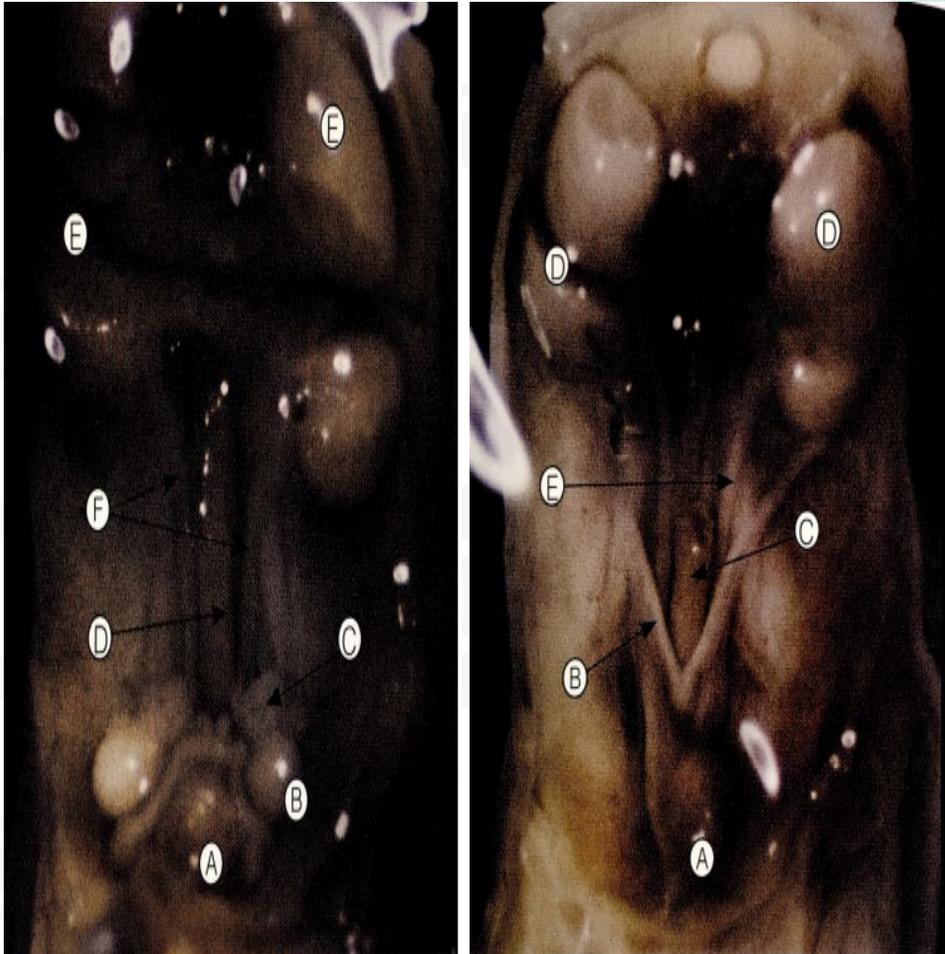
Implantações, reabsorções e número de fetos

Os ovários serão usados para contar o número de corpos lúteos

Índice de fertilidade masculina

MATERIAL AND METHODS

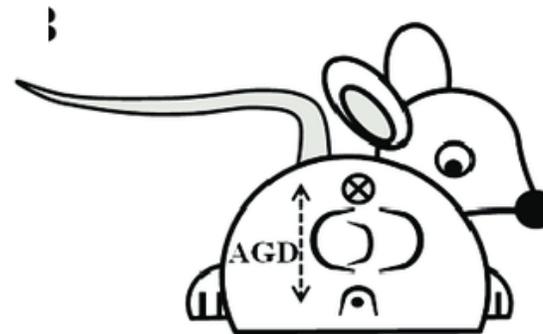
Prole Viável



Sexagem



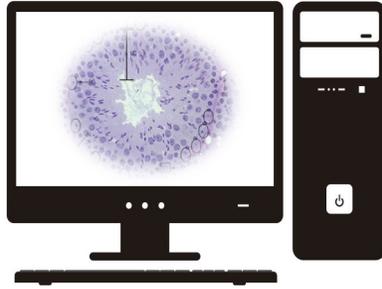
Peso da prole
Peso placentário



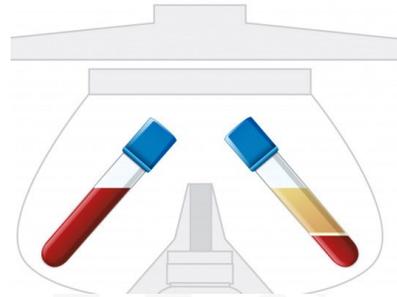
Distância anus genital da prole ao PND1



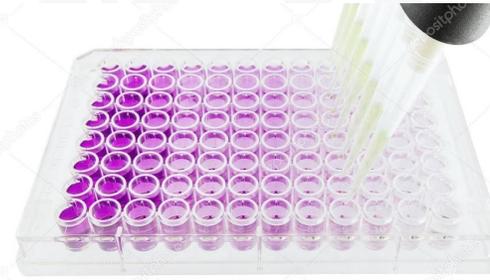
Histopatologia



Histomorfometria



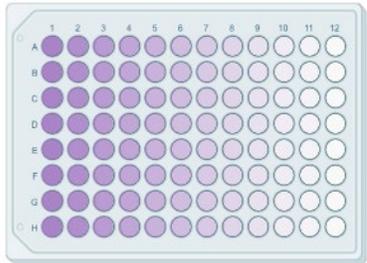
**Testosterona,
estradiol e DHT**



**Citocinas pró e anti-
inflamatória**



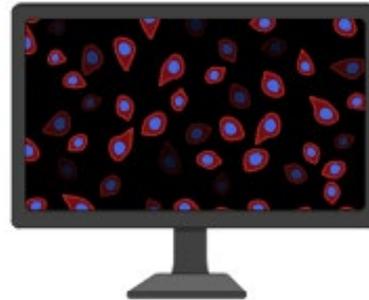
**qPCR genes testiculares e
do epidídimo**



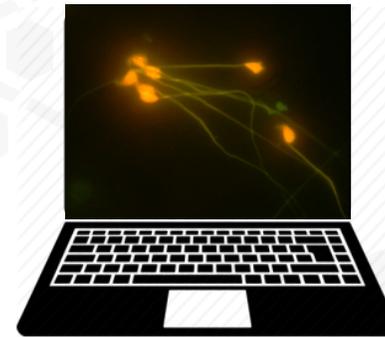
**Estresse oxidativo
Testículo e epidídimo**



**Microscopia
eletrônica**



**Imuno-histoquímica
Caspase-3
Ki-67
AR**



**Parâmetros
Espermáticos**



**Proteômica e estresse
oxidativo espermático**

MATERIAL E METODOS

Ratas Wistar 80 dias de idade



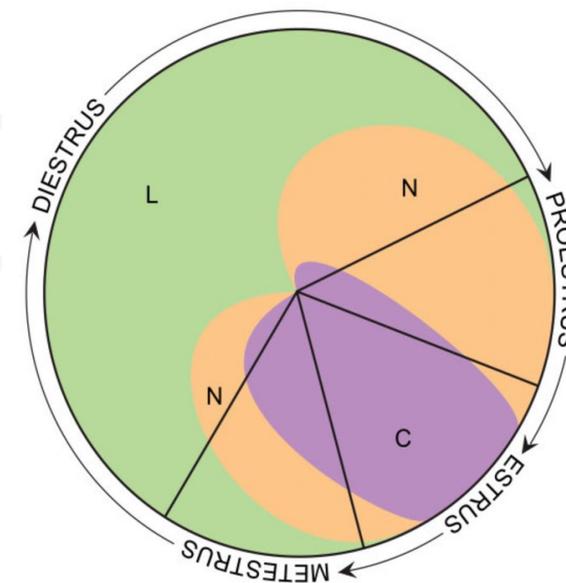
Rat

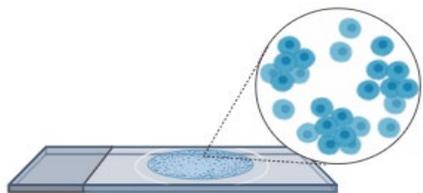


Controle (0.9% NaCl)

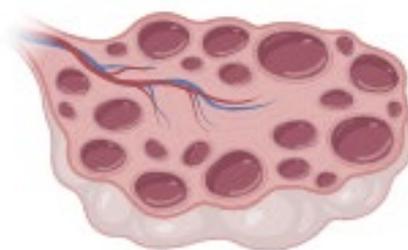
Nanoplateforma

Aplicação sistêmica





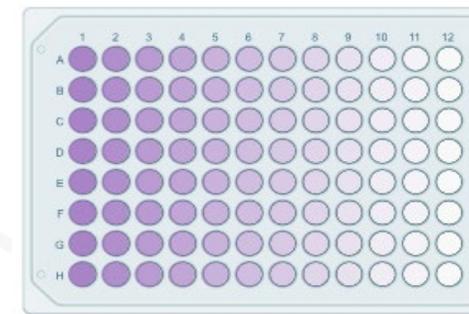
Citologia vaginal
Ciclo estral



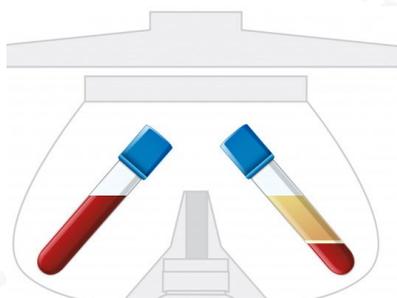
População folicular



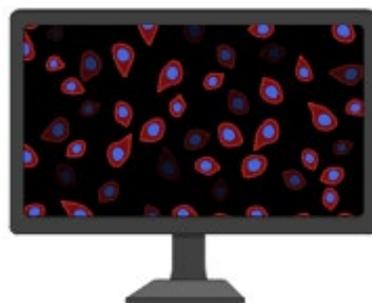
Histomorfometria



Estresse oxidativo



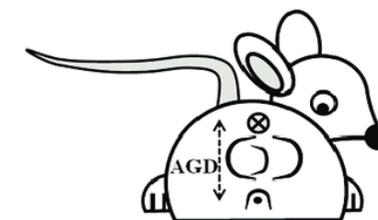
Estradiol e progesterona



Imuno-histoquímica
Caspase-3



Ensaio de fertilidade
Femina



Avaliação inicial da prole

RESULTADOS ESPERADOS

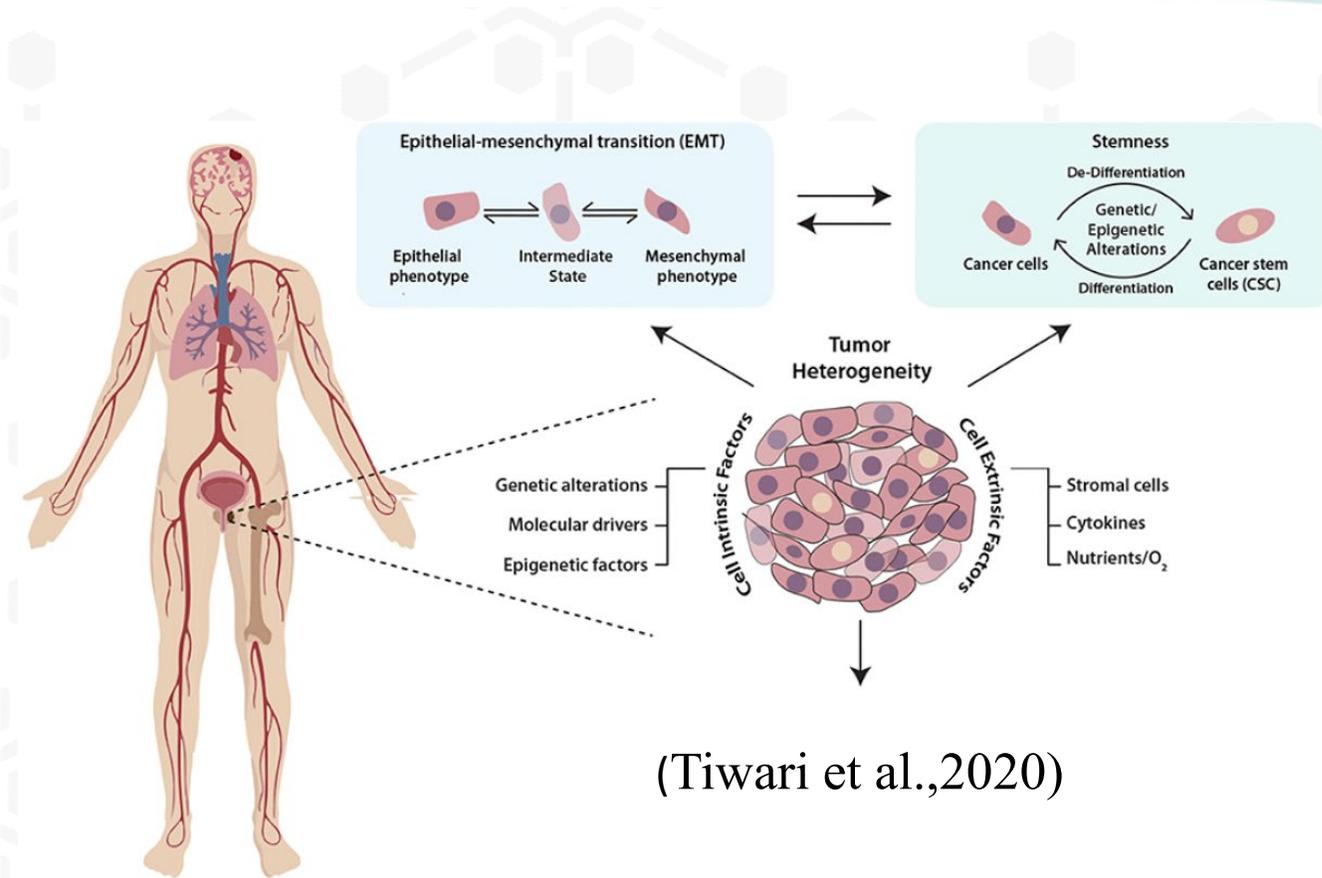
Espera-se chegar a um método que possa ser considerado um esterilizante aplicados em animais machos ou femeas, gerando um produto para controle populacional.

Os resultados serão divulgados em conferências, jornais e mídia de massa.



Câncer de próstata

Terapia antitumoral



Reproductive Toxicology 128 (2024) 108647



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^a Department of Morphology, Institute of Biological Sciences, Universidade Federal de Minas Gerais, Belo Horizonte, MG, Brazil

^b Department of General Biology, Universidade Federal de Viçosa, Viçosa, MG, Brazil

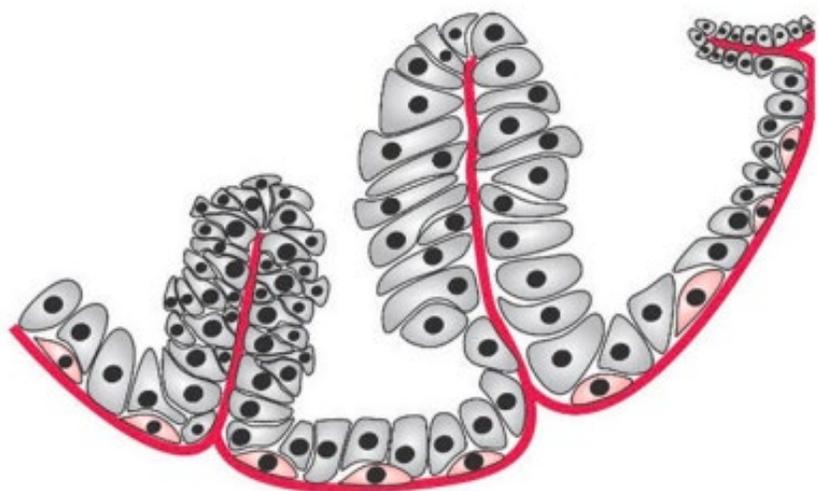
^c Department of Obstetrics, Gynecology, and Reproduction, Université Laval, Québec, QC, Canada

^d CHU de Québec Research Center, Université Laval, Québec, QC, Canada

^e Department of Animal Biology, Universidade Federal Rural do Rio de Janeiro, Rio de Janeiro, Brazil

Câncer de próstata

Terapia antitumoral



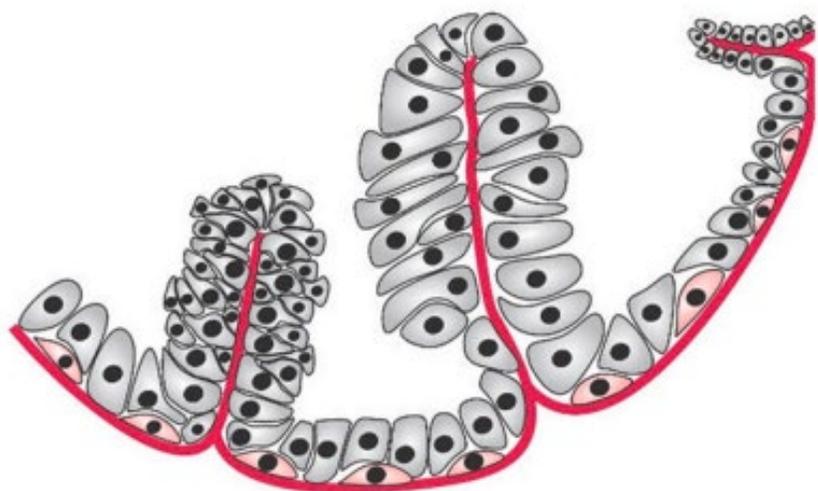
Coimbra et al .,2024

Nanoplataforma metálica e o nanocomplexo

Vacina de RNA de interferência (RNAi)

Câncer de próstata

Terapia antitumoral



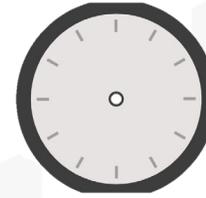
Coimbra et al .,2024

Nanoplataforma metálica e o nanocomplexo

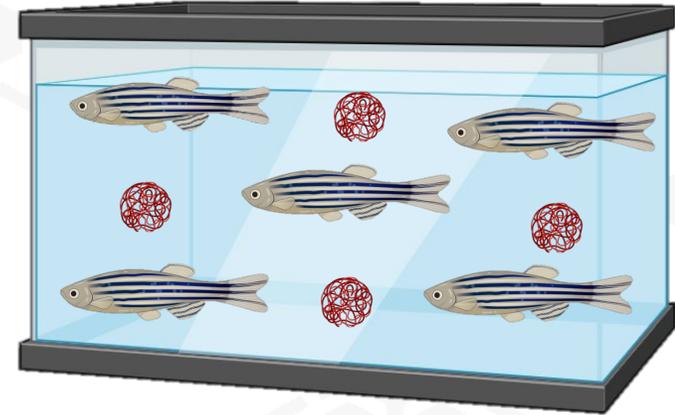
Vacina de RNA de interferência (RNAi)

Nanotoxicidade

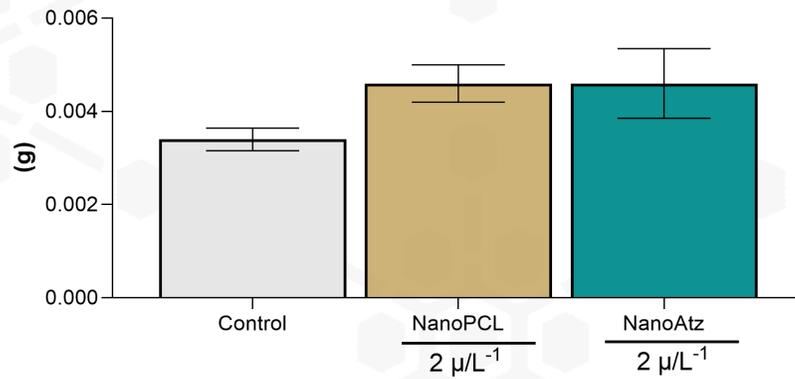
Nanoatrazina



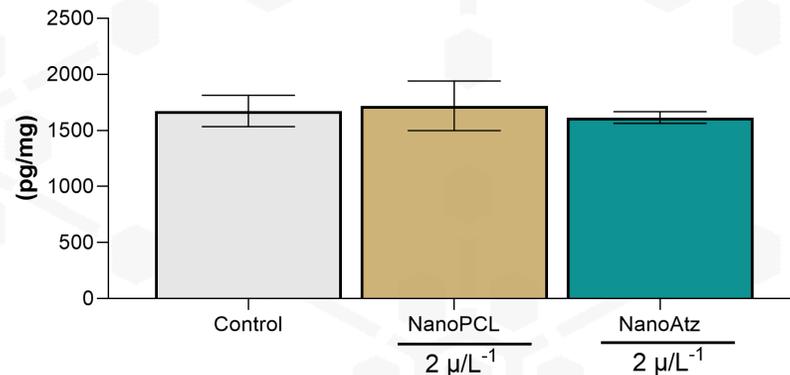
28 dias



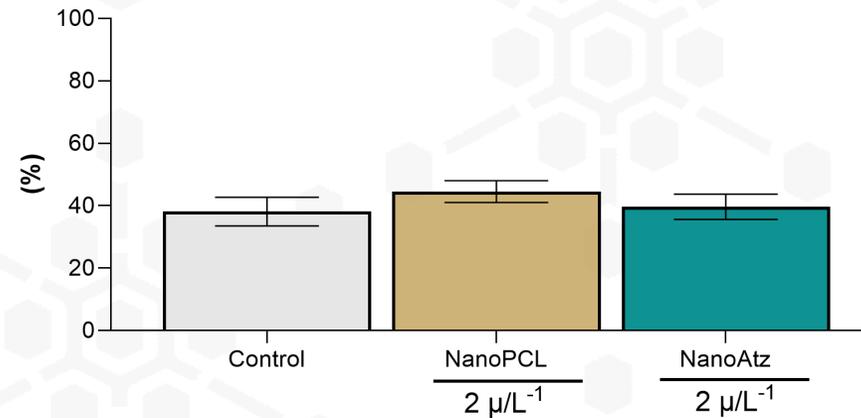
Testicle Weight



Estradiol



Sperm motility



Dados prévios

Parceiros



UNIVERSIDADE FEDERAL DO RIO DE JANEIRO
Centro de Ciências da
Saúde – CCS Instituto de Ciências Biomédicas – ICB

**SELEÇÃO DE CANDIDATOS PARA O CONCURSO PÚBLICO PARA PROVIMENTO EFETIVO
DE VAGAS NO CARGO DE PROFESSOR DA
CARREIRA DE MAGISTÉRIO SUPERIOR**

Edital 054 -Vaga MC-049- Histologia: Pesquisa Translacional

MEMORIAL ACADÊMICO

Candidato: Dr. John Lennon de Paiva Coimbra



INTRODUÇÃO



John Lennon de Paiva Coimbra



**Graduado em Ciências Biológicas-
Pontifícia Universidade Católica de Minas
Gerais (PUC Minas)**



**Mestrado em Biologia Celular e Estrutural-
Universidade federal de Viçosa (UFV)**

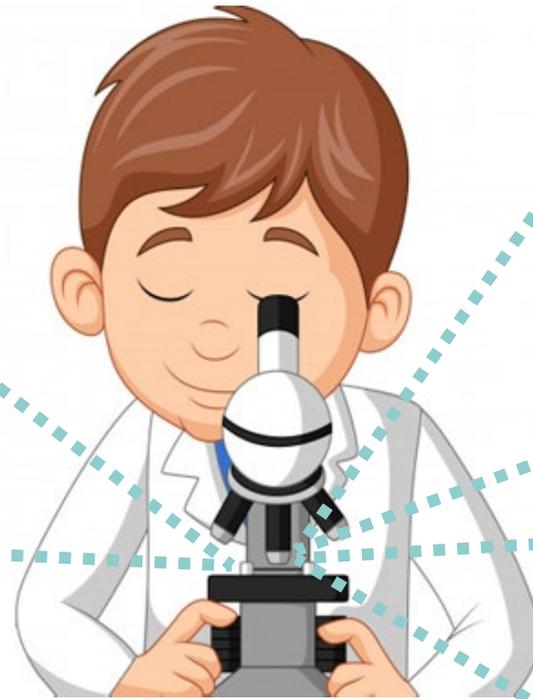


**Doutorado em Biologia Celular
Universidade Federal de Minas Gerais**

INTRODUÇÃO

Ciências Biológicas
PUC-MG-1º
semestre-2012

ProUni
PROGRAMA UNIVERSIDADE PARA TODOS



Monitoria em
Citologia e Histologia
2013-2015



TCC



Quiz Histológico

O Quiz Histológico online, possui o objetivo de auxiliá-lo (a), no estudo prático da disciplina de Histologia Geral, trazendo questões sobre o Tecido Epitelial de Revestimento. O projeto faz parte da monografia do aluno John Lennon de Paiva Coimbra do curso de Ciências Biológicas - Licenciatura da Pontifícia Universidade Católica de Minas Gerais - Betim, sob a orientação da Professora Fernanda Guimarães Vieira. Bons estudos!!!

jlennonbio@gmail.com [Mudar de conta](#)



✉ Não compartilhado

* Indica uma pergunta obrigatória

* Informe a sua Instituição de ensino

1) Qual a classificação completa do tecido apontado pela seta? *



- Tecido Epitelial de Revestimento Estratificado Pavimentoso Queratinizado.
- Tecido Epitelial de Revestimento Pseudo-estratificado Pavimentoso Queratinizado.
- Tecido Epitelial de Revestimento Estratificado Pavimentoso Não Queratinizado.
- Tecido Epitelial de Revestimento Estratificado Pavimentoso Ciliado.
- Tecido Epitelial de Revestimento Pseudo-estratificado Pavimentoso Não Queratinizado.

Graduação-Ciências Biológicas



2014-2015



**Museu de Ciências
Natural PUC Minas**



Educador 2014-2015

Intercâmbio



2015



2015-2016

BOLSAS DE ESTUDOS
INTERNACIONAIS



INTERNATIONAL SCHOLARSHIPS
BECAS INTERNACIONALES

DIPLOMA

BOLSA DE ESTUDO INTERNACIONAL FÓRMULA SANTANDER

Concedido a
JOHN LENNON DE PAIVA COIMBRA
PONTIFÍCIA UNIVERSIDADE CATÓLICA DE MINAS GERAIS

São Paulo, 13 de novembro de 2015.

JESÚS ZABALZA
Presidente Banco Santander Brasil

JAMIL HANNOUCHE
Diretor Geral Santander Universidades Brasil



DECLARAÇÃO

Para os devidos efeitos, faz-se saber que John Lennon de Paiva Coimbra realizou um estágio voluntário no Laboratório de Patologia Veterinária do Instituto de Ciências Biomédicas de Abel Salazar da Universidade do Porto, Portugal, perfazendo um total de 44 horas que decorreram entre 4 de Abril de 2016 e 20 de Junho de 2016.

Neste período teve oportunidade de realizar as seguintes tarefas e adquirir e/ou aprofundar conhecimentos relacionados com:

- Acompanhamento do diagnóstico histopatológico veterinário em todas as suas vertentes;
- Aprendizagem de técnicas básicas de histologia;
- Aprendizagem de técnicas de histoquímica e de imunohistoquímica.

Por ser verdade, passo este documento que dato e assino.

Porto, 20 de Outubro de 2016

A Responsável pelo Laboratório,

Maria de Fátima Gärtner, DVM, PhD (Med); ECVP (Diplom)
Professora Catedrática ICBAS-UP



U. PORTO



ICBAS INSTITUTO DE CIÊNCIAS
BIOMÉDICAS ABEL SALAZAR
**SCHOOL OF MEDICINE AND
BIOMEDICAL SCIENCES**

U. PORTO

FC FACULDADE DE CIÊNCIAS
UNIVERSIDADE DO PORTO

Graduação-Ciências Biológicas

TCC

2 Capítulos de Livro

3 Materiais didático

**2 Trabalhos publicados em anais
de congresso**

4 Apresentações em simpósios

**Oferta de oficina em eventos de
educação**



Mestrado

UFV

Universidade Federal
de Viçosa



2018-2020

Cursos ministrados
Artigos



Toxicologia reprodutiva e Sistêmica



Doutorado

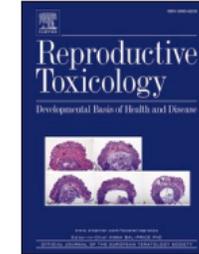


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GY

Gold
steril

John L
Pedro
Mirian
Maria

^a Laborato
^b Laborato
^c Laborato
Horizonte,
^d Departm
^e Laborato
^f Laborato

^g Clinical Hematology Laboratory, Faculty of Pharmacy, Biological Sciences, Federal University of Minas Gerais, Belo Horizonte, MG, Brazil

Subchronic intake of arsenic at environmentally relevant concentrations causes histological lesions and oxidative stress in the prostate of adult Wistar rats

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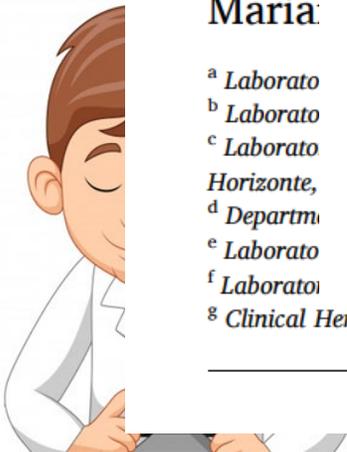
^a Department of Morphology, Institute of Biological Sciences, Universidade Federal de Minas Gerais, Belo Horizonte, MG, Brazil

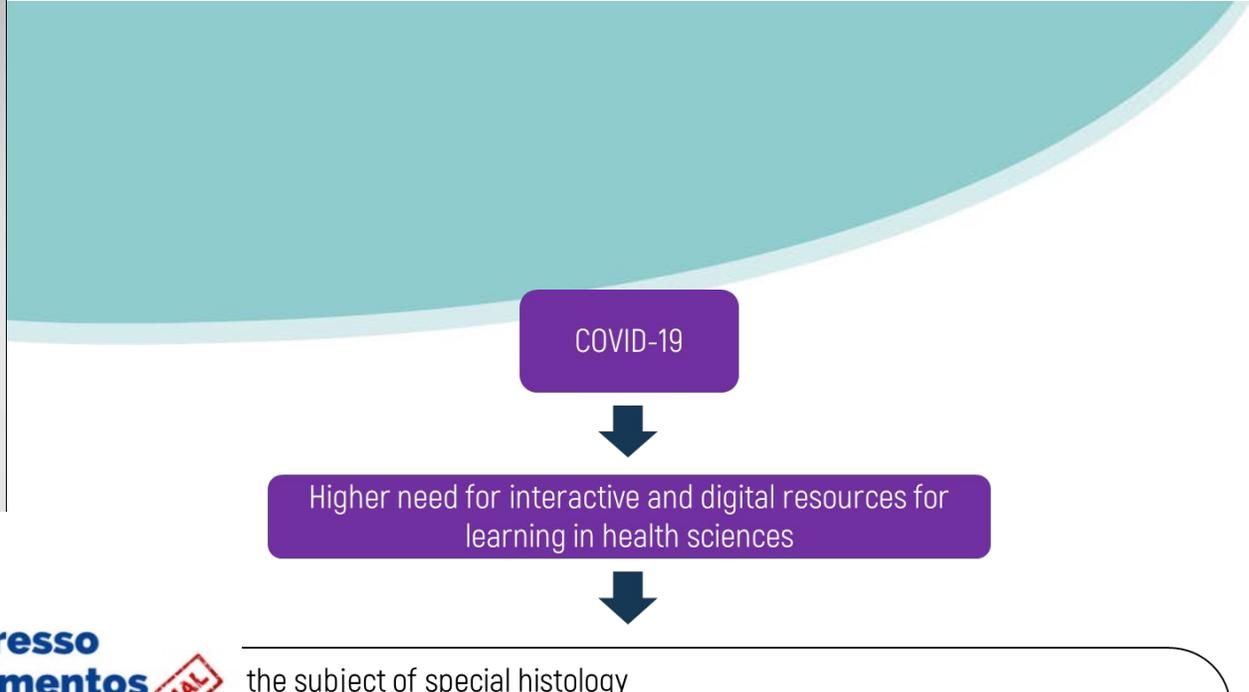
^b Department of General Biology, Universidade Federal de Viçosa, Viçosa, MG, Brazil

^c Department of Obstetrics, Gynecology, and Reproduction, Université Laval, Québec, QC, Canada

^d CHU de Quebec Research Center, Université Laval, Québec, QC, Canada

^e Department of Animal Biology, Universidade Federal Rural do Rio de Janeiro, Rio de Janeiro, Brazil





07



the subject of special histology

A imagem histológica representa uma artéria.

() Verdadeiro ou () Falso
Justifique

Ver a resposta

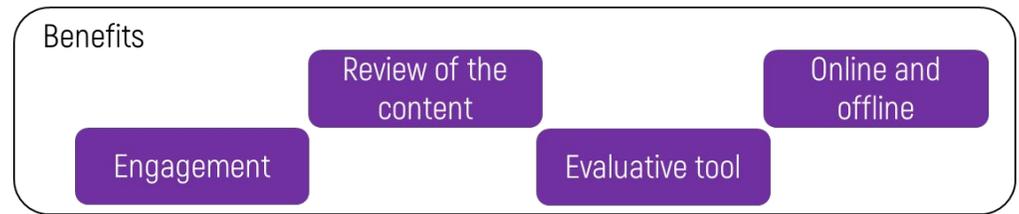
VOLTAR

III Karyokinesis Symposium Science: work in progress!



Escolha um número!

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40





patologia.ufmg

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69 publicações 1.085 seguidores 46 seguindo

Patologia |UFMG|

Interativa e Integrativa

Projeto de Extensão

Casos Clínicos

Educação em Saúde

Normal X Patológico

Patologia Geral

Fatos e Conexões

Seguido(a) por sara.candida e fe_lipeoliveira



FATOS E C...



PATOLOGIA...



EDUCAÇÃ...



NORMAL/P...



CASOS CLÍ...



QUEM SO...

Atividade dentro do Ensino e extensão

DIA NACIONAL DA VACINAÇÃO

DEZEMBRO VERMELHO

Mês de luta contra a AIDS



01 de Dezembro

17 de Outubro

DIA NACIONAL DE DOAÇÃO DE LEITE HUMANO



01 de Outubro

SETEMBRO VERDE



Dia Nacional da Doação de Órgãos

27 de Setembro

DIA MUNDIAL DA DIABETES



14 de Novembro

DIA MUNDIAL DE COMBATE AO ESTRESSE:

Alerta Necessário



23 de Setembro

NOVA EQUIPE



PATOLOGIA UFMG

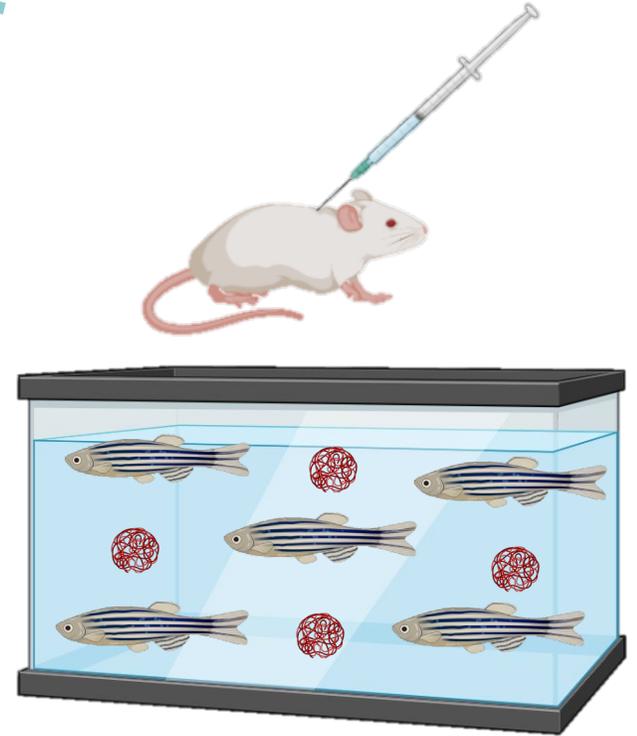
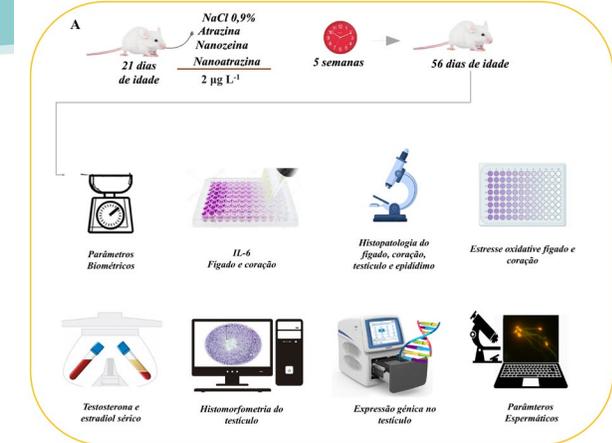
PATOLOGIA UFMG

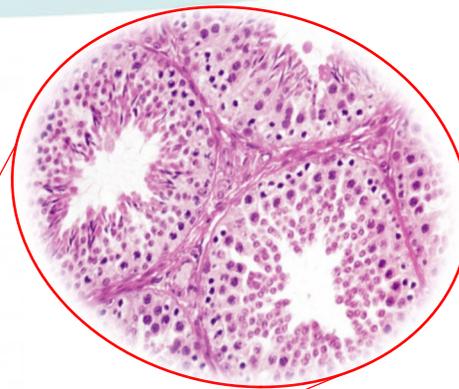
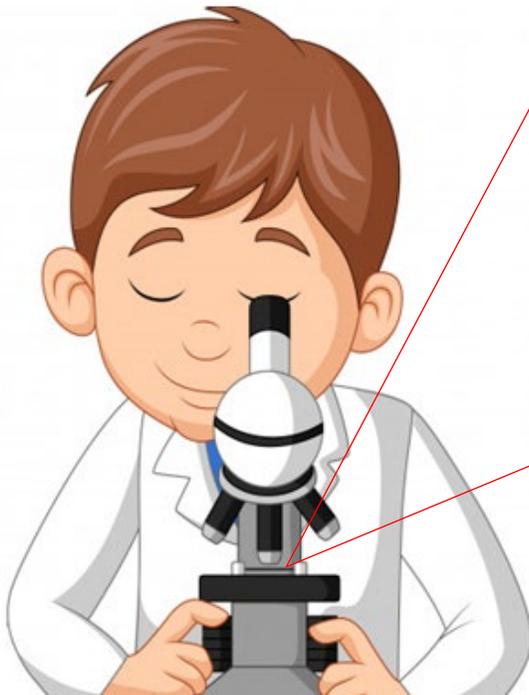
PATOLOGIA UFMG

PATOLOGIA UFMG

PATOLOGIA UFMG

2024





UFRJ

Obrigado

John Lennon de Paiva Coimbra

Email: jlennonbio@gmail.com

