

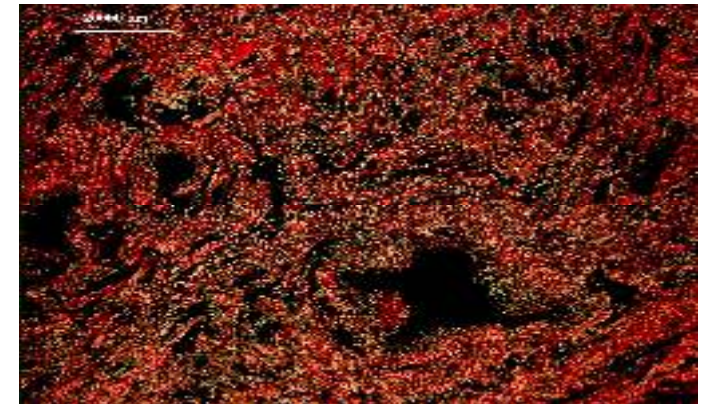
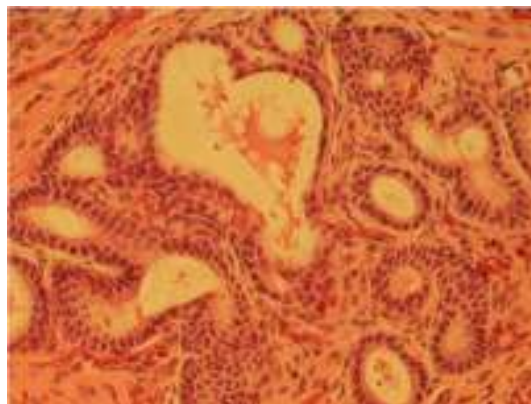
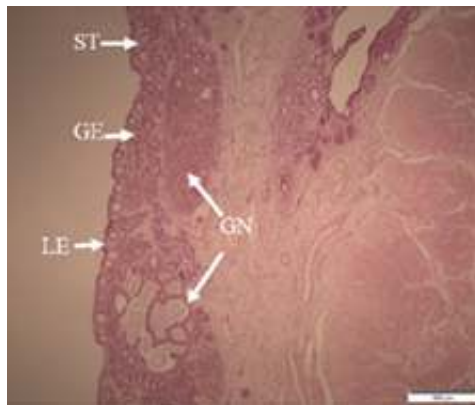
TGF- β 1 and E2 effect on PGE2 secretion in equine endometrium in vitro

ANA AMARAL, MARTA CERVEIRA-PINTO, NÉLIO GALRITO-CEBOLA,
DARIUSZ SKARZYNSKI, GRAÇA FERREIRA-DIAS, ANNA SZÓSTEK-
MIOUCHOWSKA,

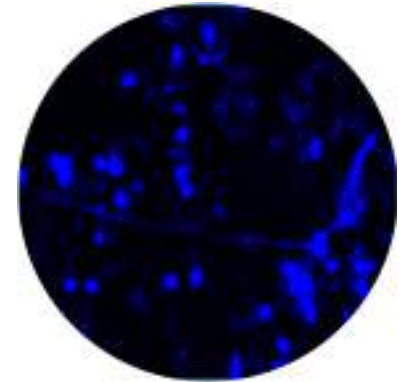
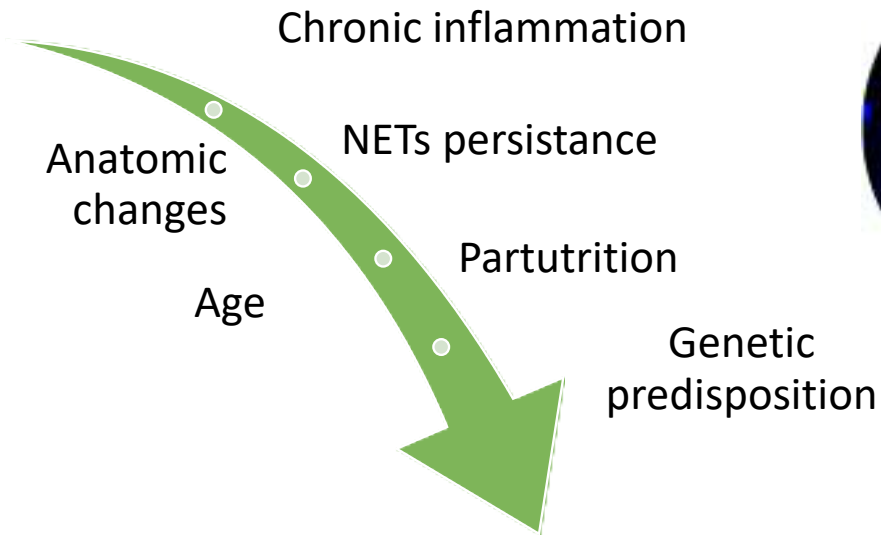
Endometriosis

- Equine endometrial fibrosis
- Causes infertility/subfertility

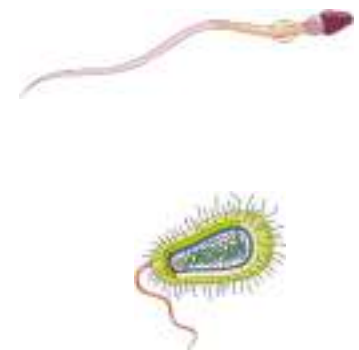
- ❖ Fibrotic & Degenerative Changes
 - ❖ Periglandular fibrosis
 - ❖ Glandular reduction
 - ❖ Tissue atrophy & architectural loss



Endometriosis - causes



(Rebordão et al. 2018)



Post-breeding
endometritis

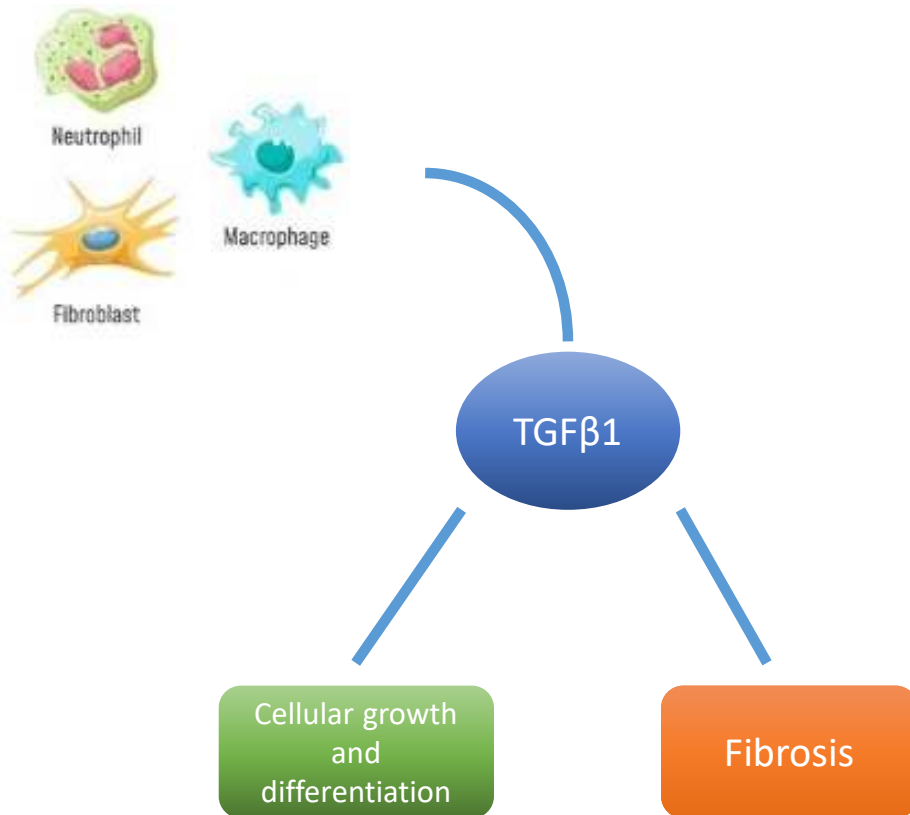


> 72h
Susceptible mares



Endometrial
fibrosis

TGF β 1 and Endometriosis

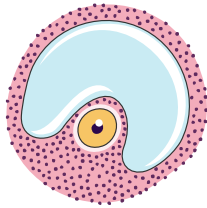


Equine endometriosis

- ❖ Regulation of endometrial remodeling
- ❖ Induced myofibroblast differentiation and fibroblast proliferation
- ❖ **Pro-fibrotic effect:**
 - ❖ Induced MMPs and COL1 expression

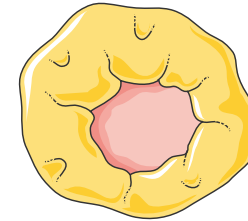
(Amaral et al. 2020a; Szóstek-Mioduchowska et al. 2019a, 2019b, 2020; Amaral et al 2025)

Ovarian steroids



Follicular phase (FP)

➤ Estradiol (E2)



Mid-luteal phase (MLP)

➤ Progesterone (P4)

Equine endometrosis

❖ **Pro-fibrotic effect:**

- ❖ TGF- β 1 effect is modulated by ovarian steroids – E2 and P4
 - ❖ **P4** attenuated pro-fibrotic effect in MLP

scientific reports

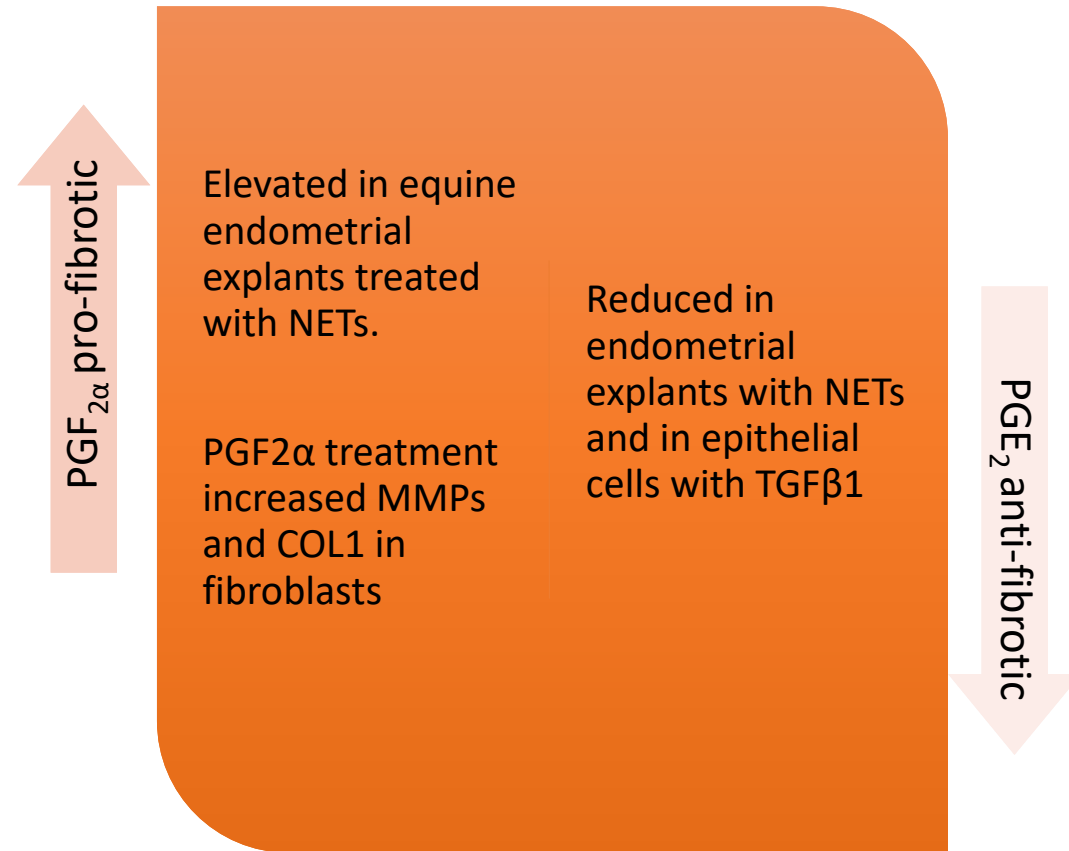
OPEN **Ovarian steroids modulate mRNA expression of ECM associated genes and collagen deposition induced by TGF β 1 in equine endometrium in vitro**

Amaral Ana^{1,2,3,4}, Szadowska Agnieszka⁴, Laveina-Pinto Maria^{1,2}, Kordonicki Paweł^{3,5},
Sikaczynski Dominik², Bandra-Ulas Anna^{1,2} & Anna Beć-Siódła-Nikodemowska⁴

Prostaglandins (PGs)

Key regulators:

- Inflammation, estrous cycle and pregnancy
- Modulate tissue remodeling and fibrosis



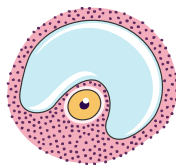


Evaluate the effects of TGF- β 1 and E2, individually or combined, on PGES expression and PGE2 production in equine endometrial explants during the follicular phase for 24 and 48 hours

Equine endometrial
explants
post-mortem



Follicular phase FP
(n = 4)



Cultured
24 and 48h
37°C



- **Control:** DMEM-F12 + 0.1% BSA
- **TGFβ1** (10ng/mL)
- **E2** (10^{-9} M)
- **TGFβ1** (10ng/mL) + **E2** (10^{-9} M)



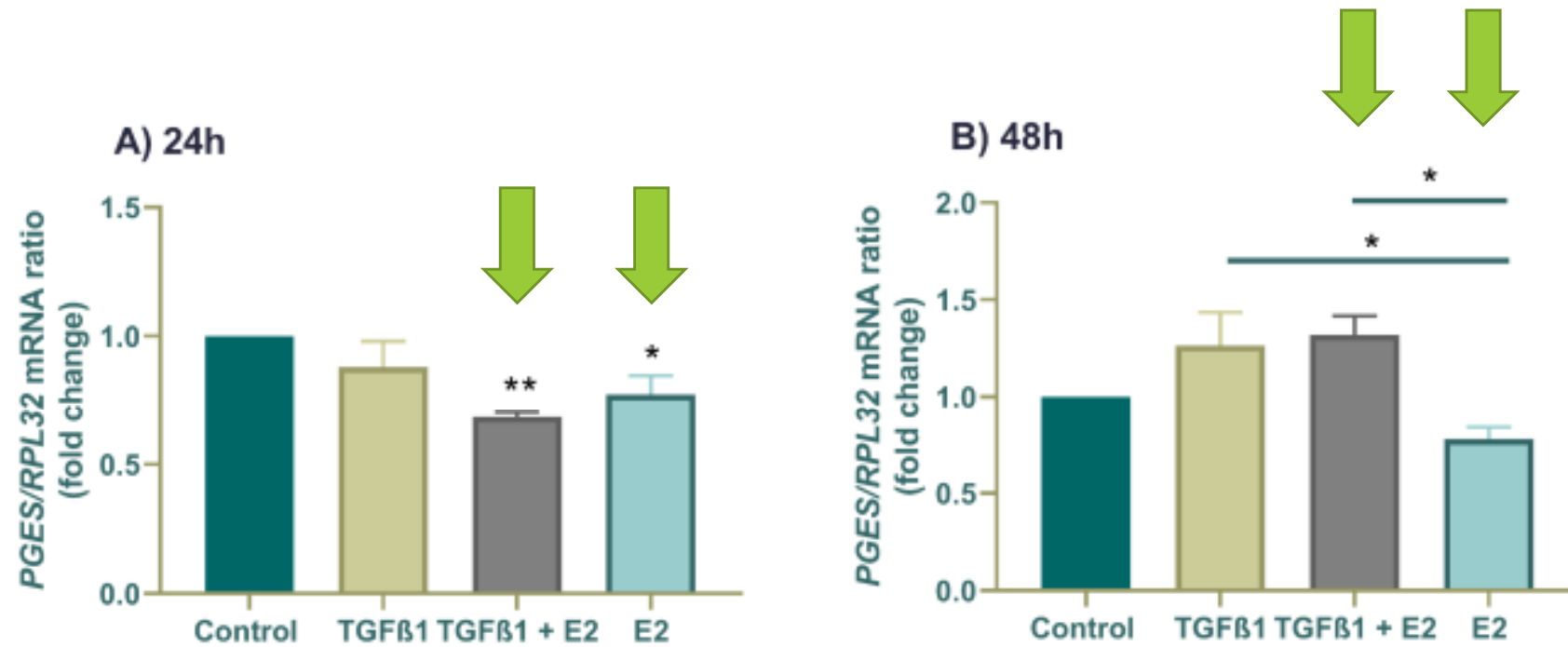
Explants
24h
48h

qPCR
PGES

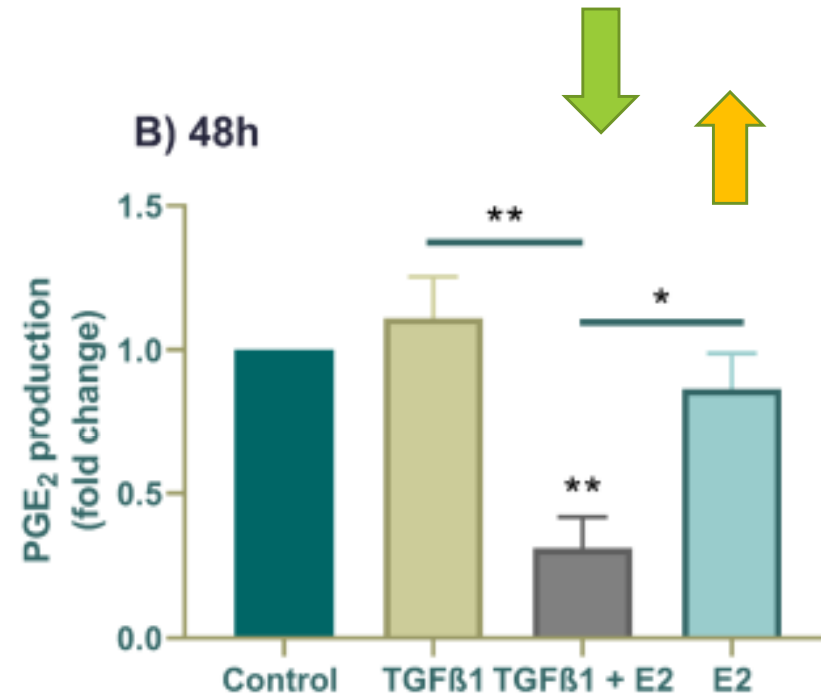
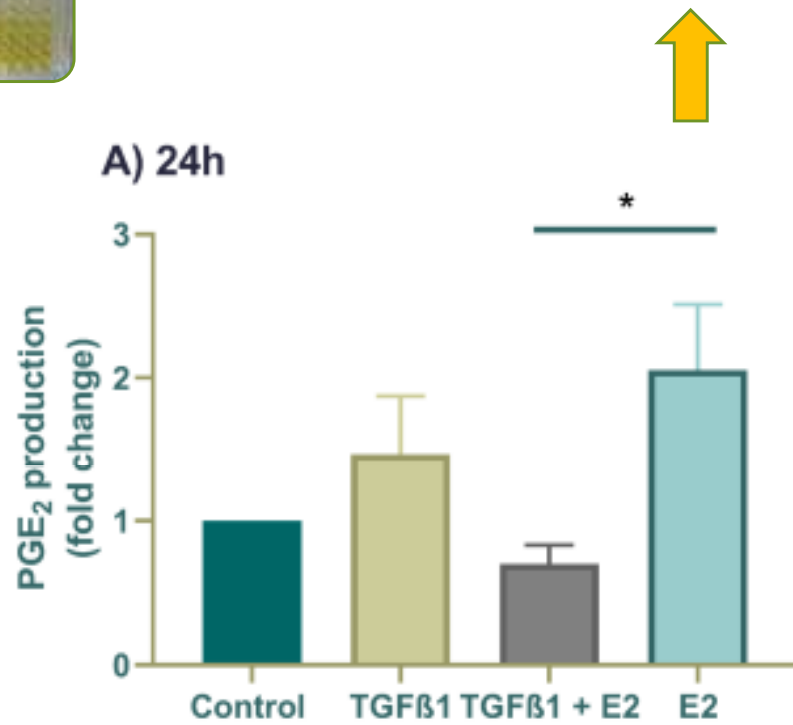
ELISA
PGE2_{secretion}



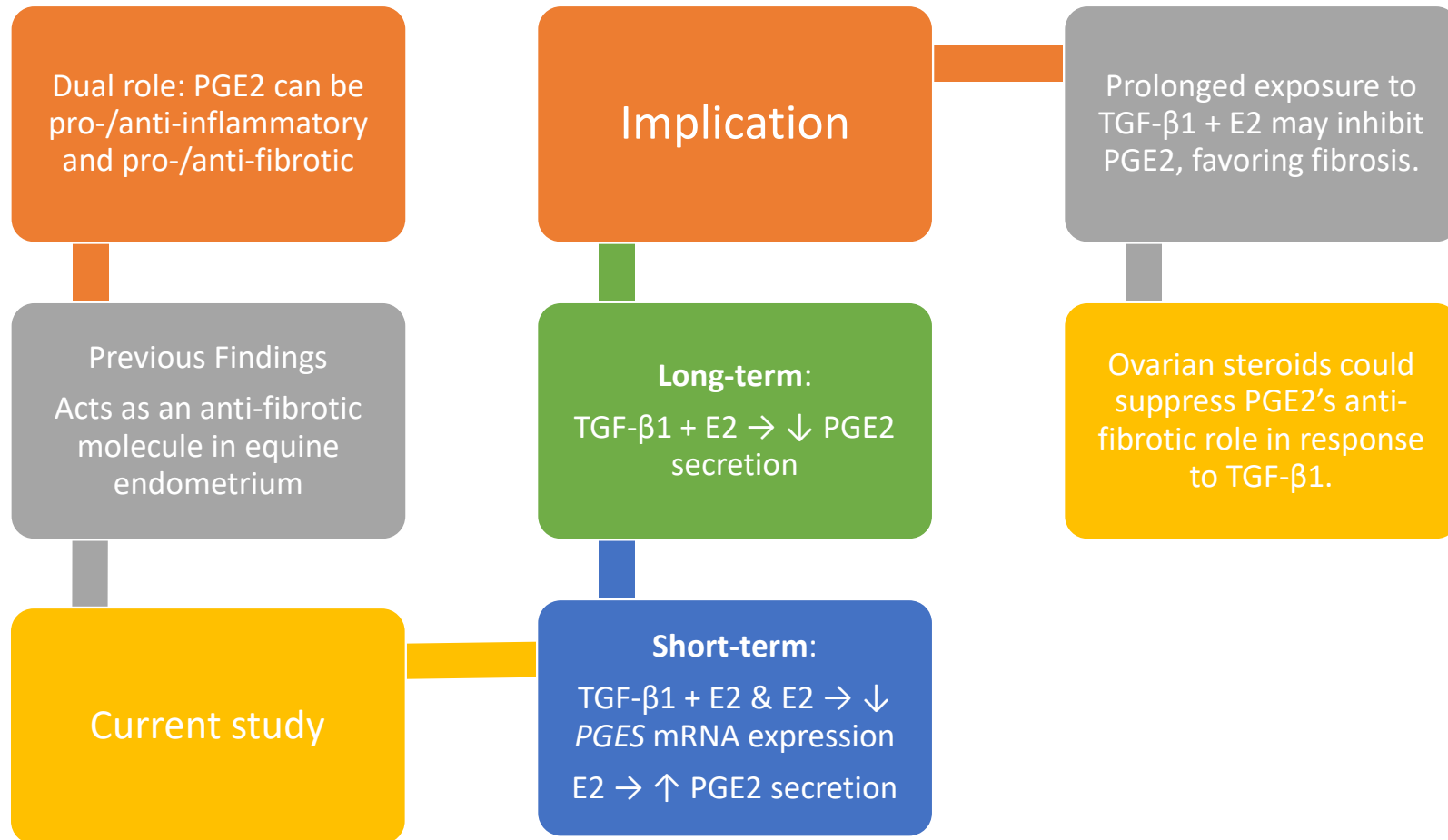
PGES gene



PGE₂ production



Conclusions



Aknowledgements



UNIVERSIDADE DE ÉVORA



FCT (Portugal):

CIISA: UIDB/00276/2020

AL4AnimalS: LA/P/0059/2020

Project 2022.07400.PTDC

PhD scholarship 2023.04679.BD

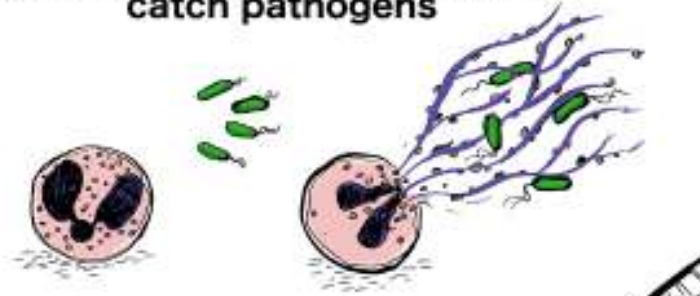
Institute of Animal Reproduction and Food Research - PAS, Poland

Team of Molecular Basis of Equine Reproduction

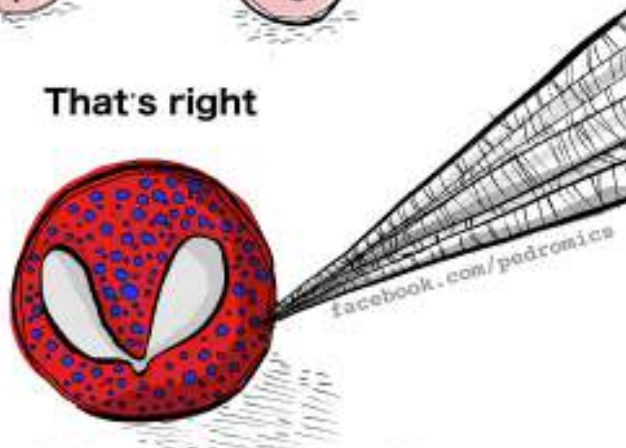


Fundação
para a Ciência
e a Tecnologia

Neutrophils can shoot traps to catch pathogens



That's right



Neutrophils are just like spiderman

