Effect of silicon-enriched meat consumption on proximal colonic antioxidant status of late-stage T2DM rats

Marina Hernández-Martín[1,2], Rocío Redondo-Castillejo[1,2], Aránzazu Bocanegra[1], Alba Garcimartín[1], Adrián Macho-González[3], Juana Benedí[1], M. José González-Muñoz[4], Sara Bastida[3], Francisco J. Sánchez-Muniz[3] and M. Elvira López-Oliva[2]

[1] Department of Pharmacology, Pharmacognosy and Botany. Faculty of Pharmacy. Complutense University of Madrid
[2] Departmental Section of Physiology. Faculty of Pharmacy. Complutense University of Madrid
[3] Department of Nutrition and Food Science. Faculty of Pharmacy. Complutense University of Madrid.
[4] Department of Biomedical Sciences; Toxicology Teaching Unit. Faculty of Pharmacy. University of Alcalá

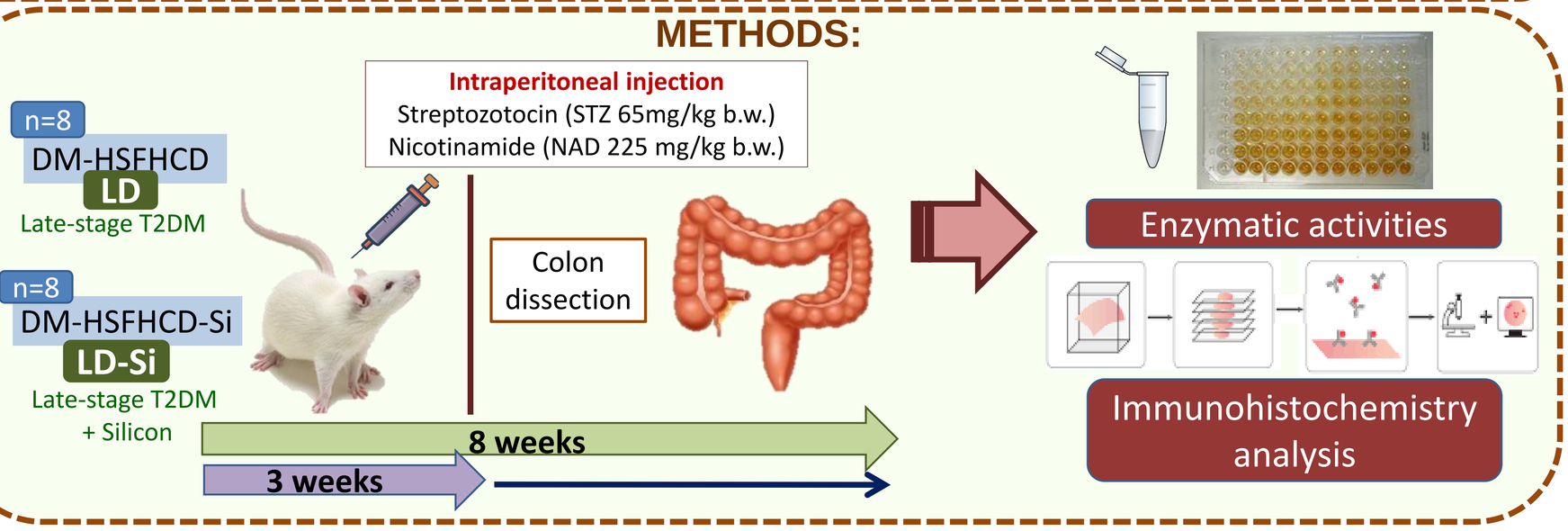
INTRODUCTION:

Colonic mucosa exhibits numerous functional alterations associated to Type 2 Diabetes Mellitus (T2DM). Oxidative stress, a factor involved in T2DM pathogenesis and its complications, may contribute to some of those colonic alterations. Silicon (Si) is a trace element with antioxidant, anti-inflammatory and anti-diabetic effects.

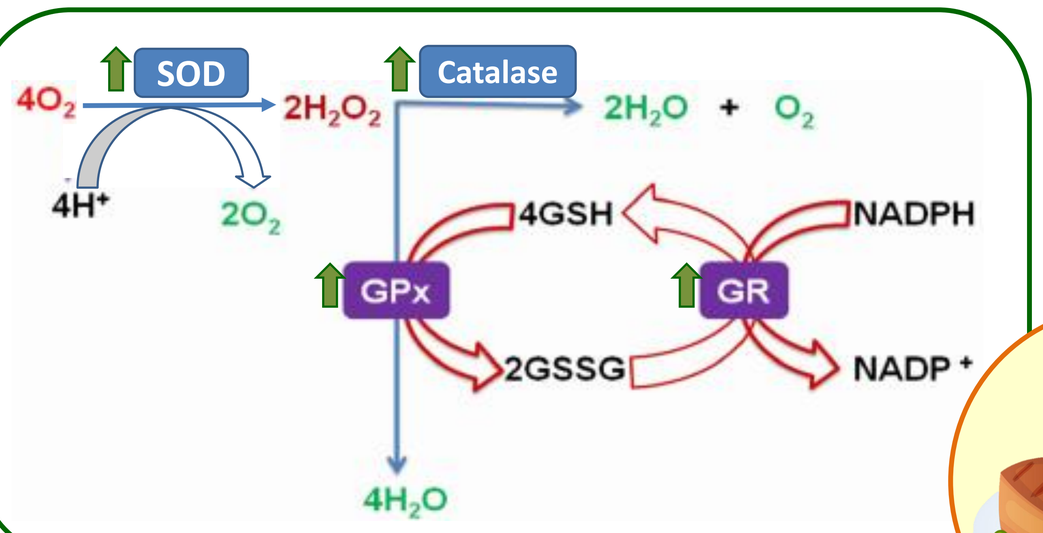
OBJECTIVES:

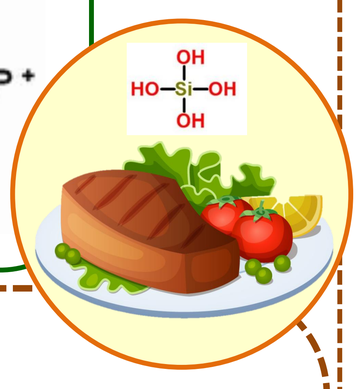
In this study, we examined if Si intake as a functional ingredient might enhance the antioxidant status of proximal colonic mucosal barrier in late-stage T2DM rats.

METHODS:

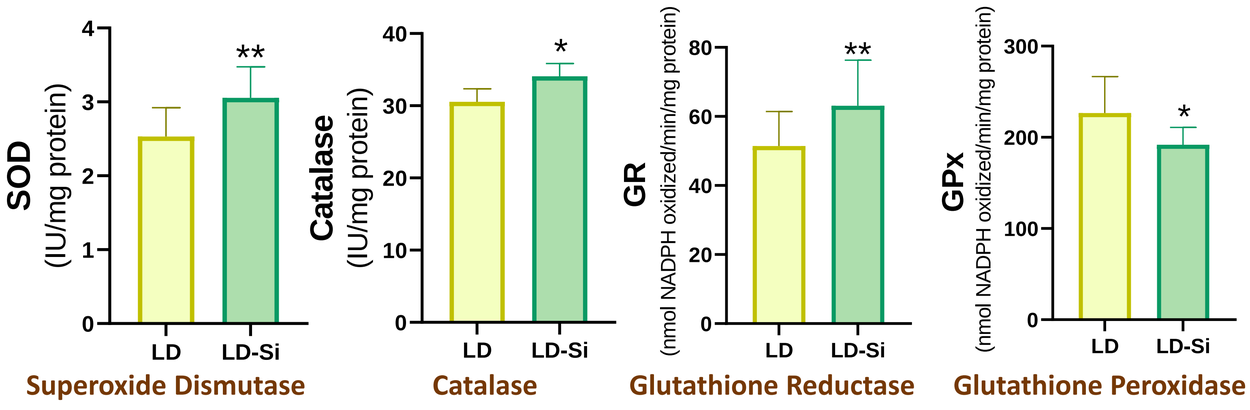


RESULTS





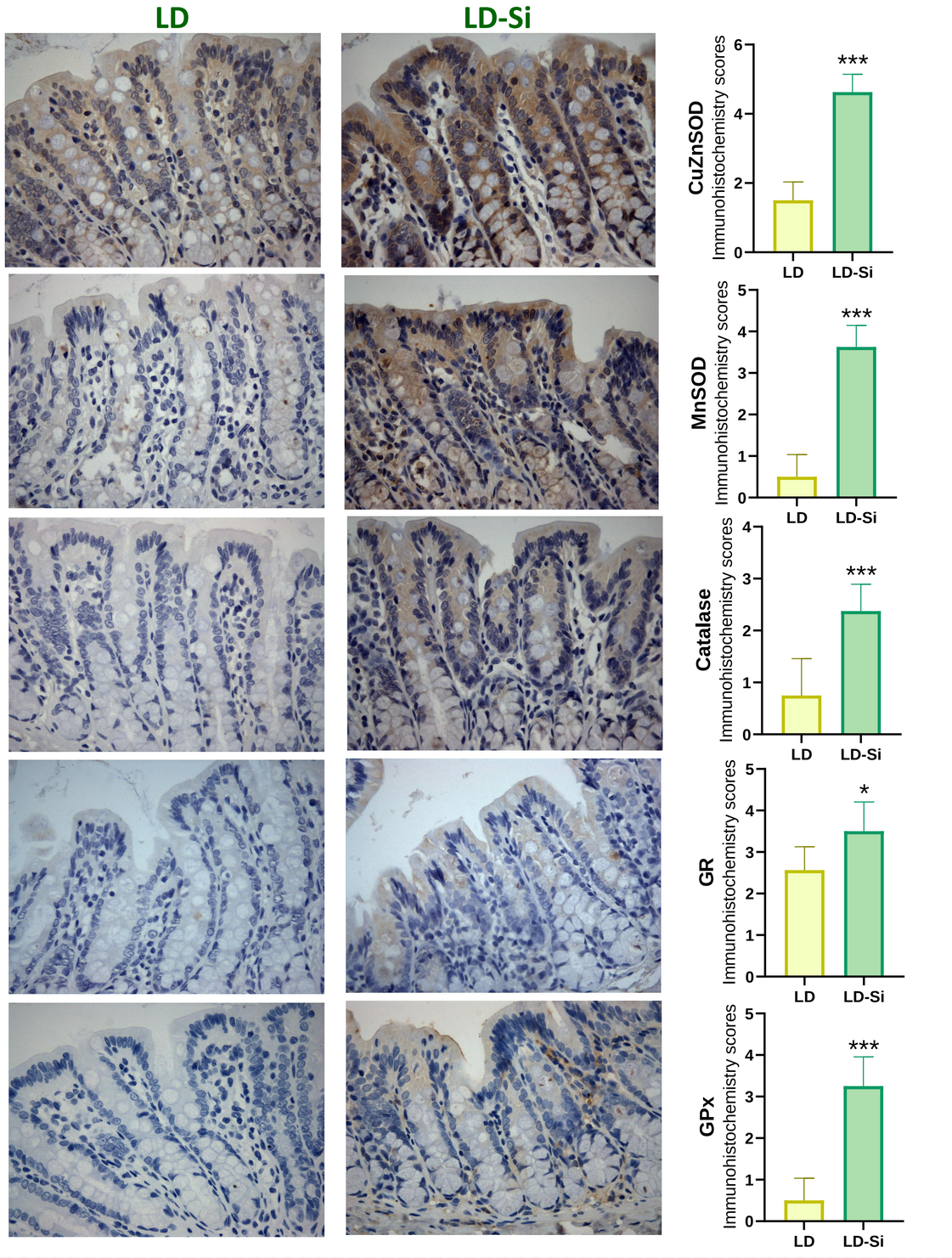
Antioxidant activities



Values are means ± Standard Error of the Mean (SEM). Asterisks indicate significant differences between groups, being p=0.01, *; p=0.001, **and p≤0.0001, ***. ANOVA (p<0.05).

- ✓ LD-Si group showed significant higher levels in immunohistochemistry scores of all antioxidant enzymes studied respect to LD group.
- ✓ Silicon intake also induced higher total SOD, Catalase and GR enzymatic activities.

Antioxidant Immunohistochemistry



CONCLUSIONS:

Silicon effectively protected colonic mucosa against oxidative stress induced by T2DM. The incorporation of Si as a functional ingredient could be suitable as a new nutritional tool to reverse colonic mucosa dysfunction associated to metabolic disorders, such as T2DM.

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