Silicon intake reduces hypercholesterolemia facilitating reverse cholesterol transport through intestinal activation of LXR/ABC transporters pathway in type 2 diabetic rats

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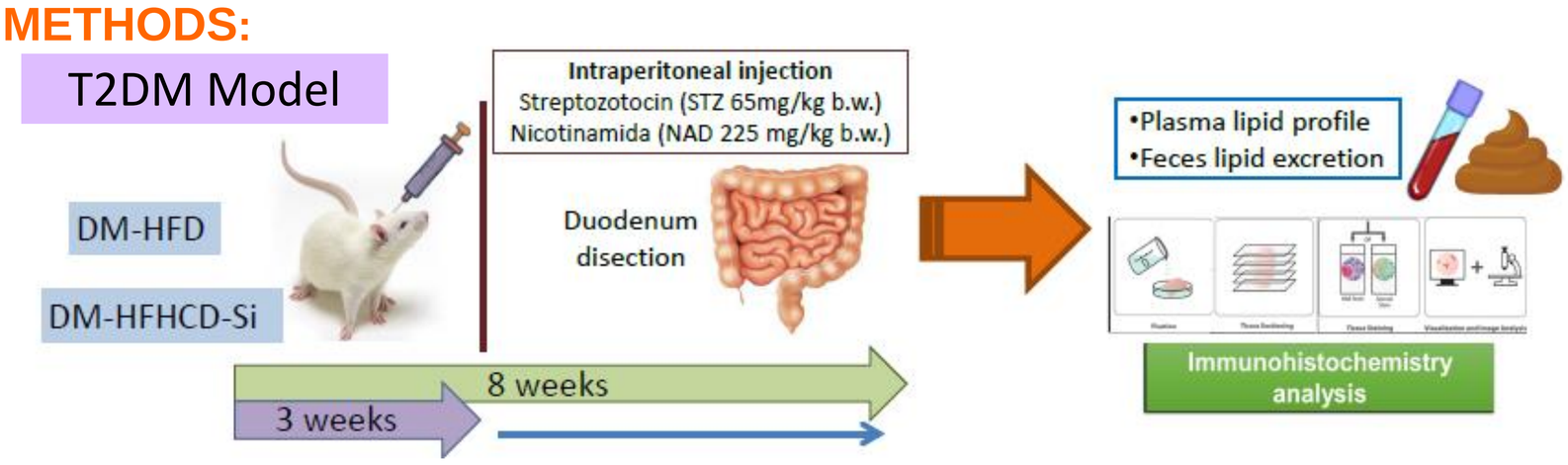
INTRODUCTION:

- Dyslipidemia by increased intestinal cholesterol (Chol) absorption is a risk factor in type 2 Diabetes Mellitus (T2DM).
- Intestinal transporters mediate Chol absorption and are an important therapeutic target to reduce hypercholesterolemia.
- Silicon intake (Si) has a hypolipemic effect in experimental T2DM models.
- Could silicon intake modulate Chol transporters levels in duodenum by lowering hypercholesterolemia in T2DM rats?

METHODS:

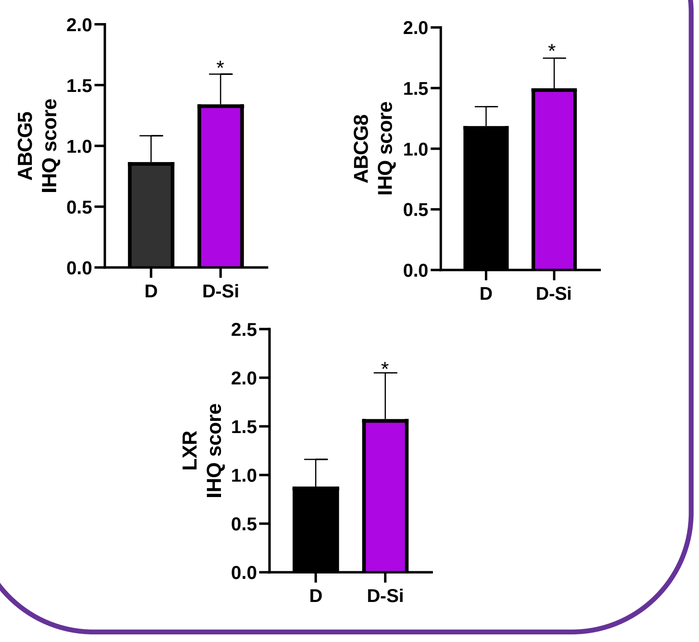


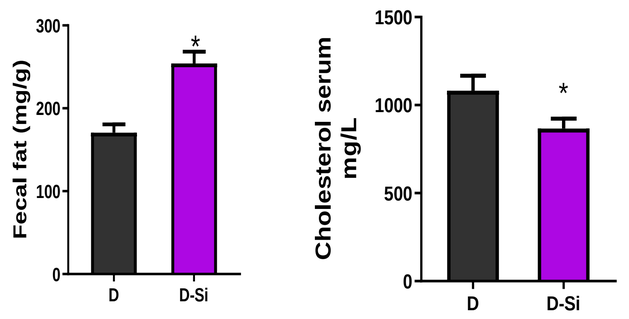
OBJECTIVES:

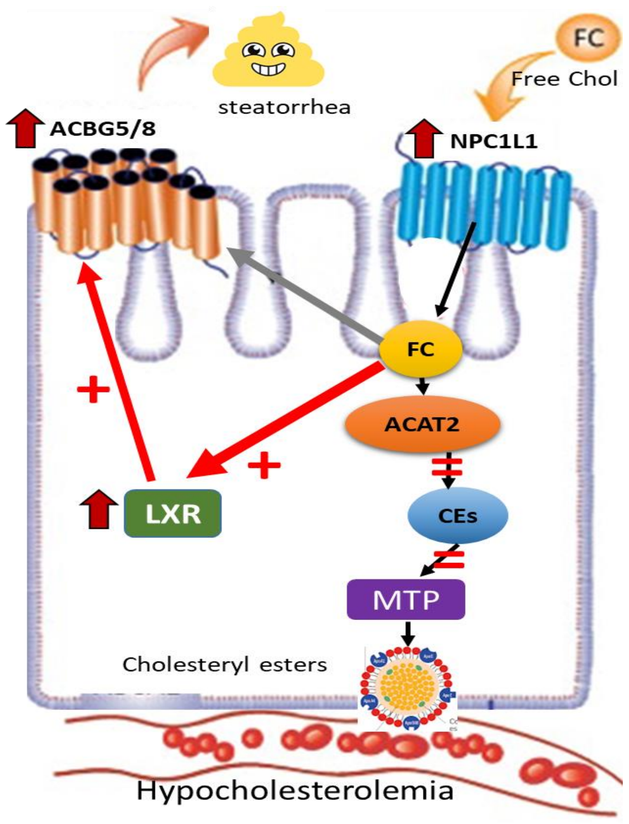
- To evaluate the hypolipemic effects of Si and to characterize duodenal molecular mechanism implicated.
- To determine if silicon inhibits the intestinal Chol absorption by modulating its reverse transport LXR/ABCG5/8 pathway.

RESULTS:

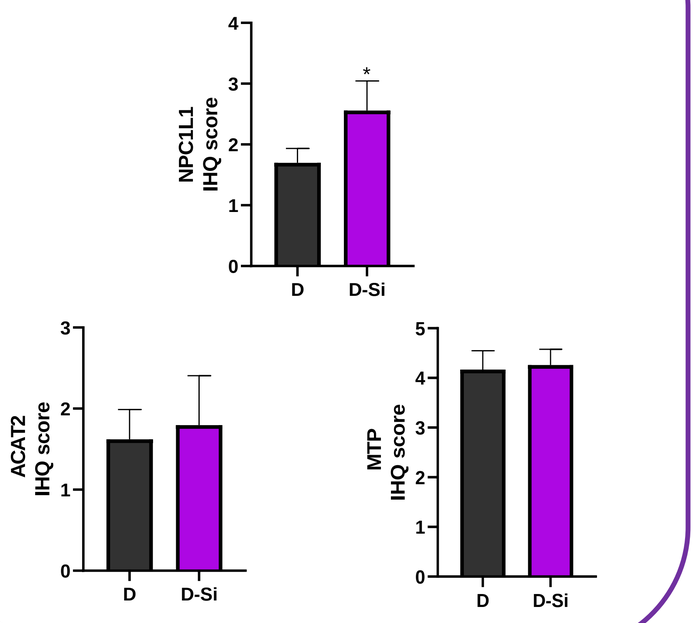
Cholesterol excretion

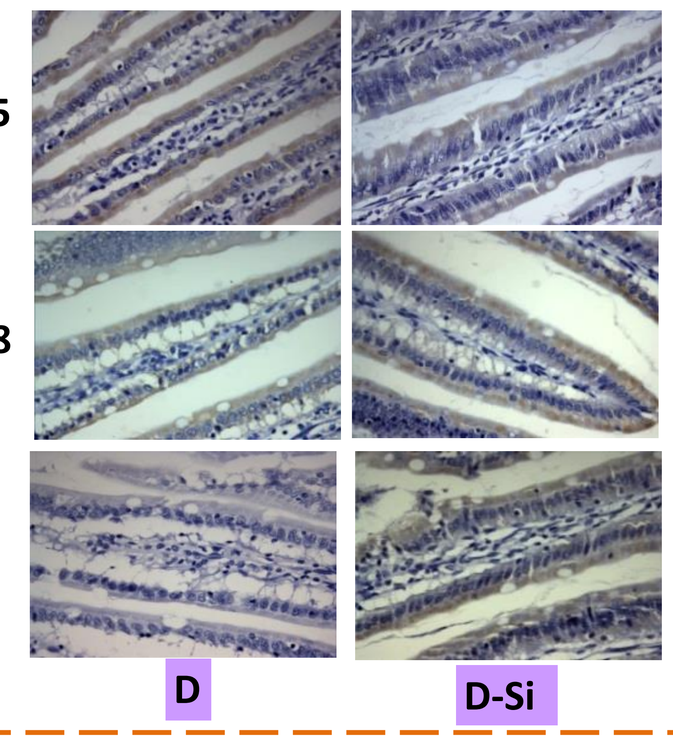






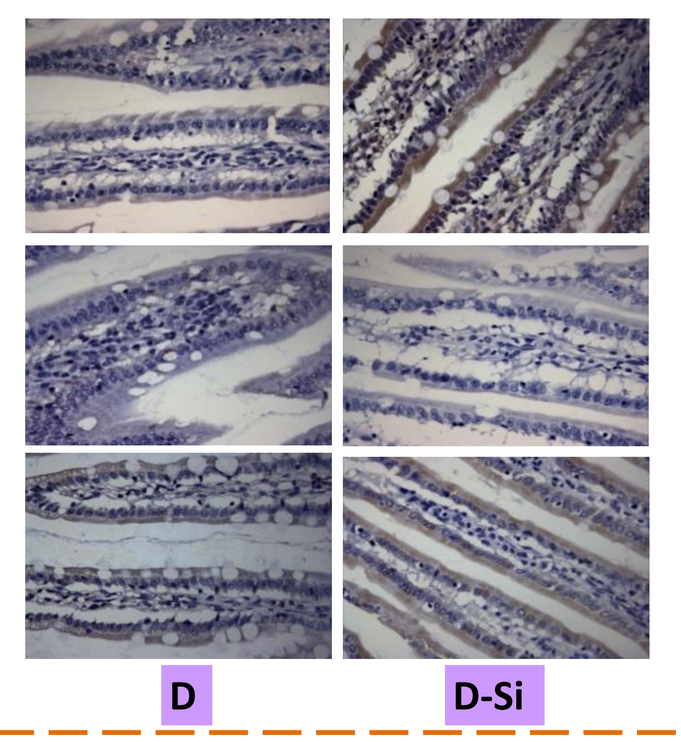
Cholesterol absorption





D- T2DM

D-Si T2DM+ Silicon



CONCLUSIONS:

The present study demonstrates that Si consumption might facilitate the cholesterol efflux into feces through upregulating LXR, ABCG5 and ABCG8 expression in duodenum and could be a potentially therapeutic nutritional ingredient for hypercholesterolemia associated to insulin resistance in T2DM treatment.

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