ANTIULCER ACTIVITY OF NEW PROBIOTIC PREPARATION CONSISTING OF LACTIC ACID BACTERIA AND PROPOLIS

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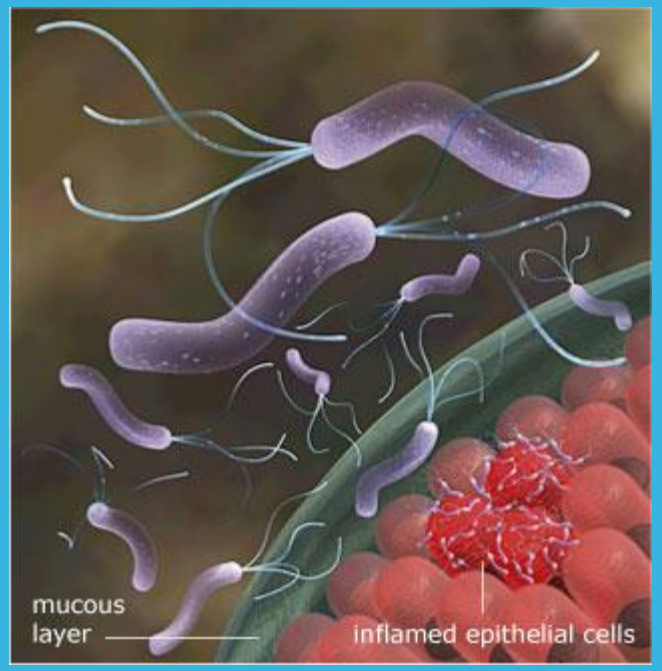
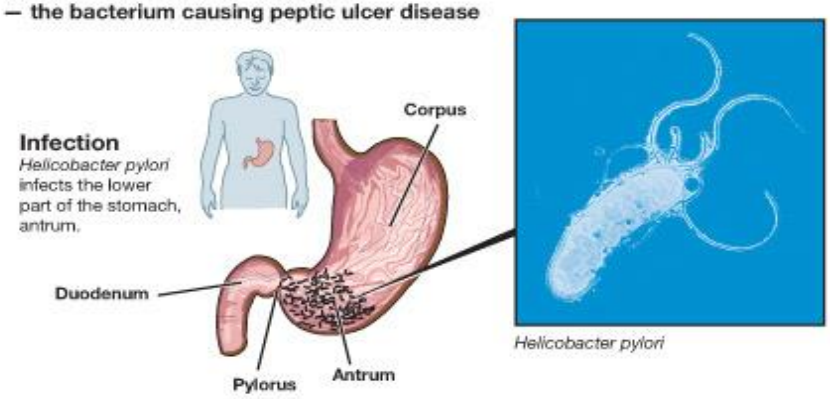
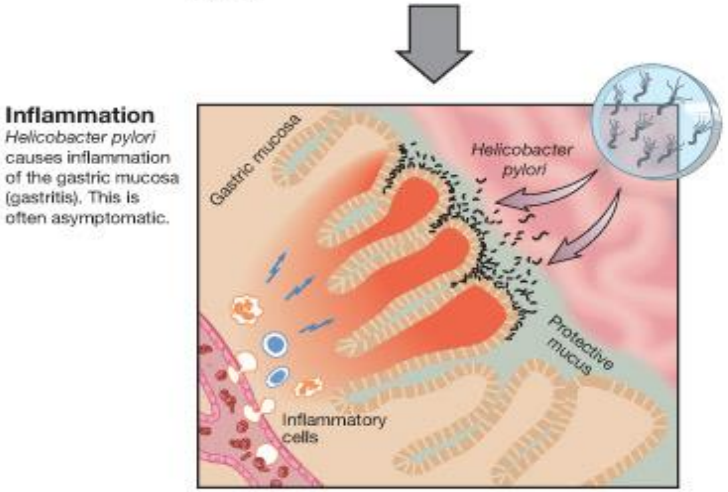
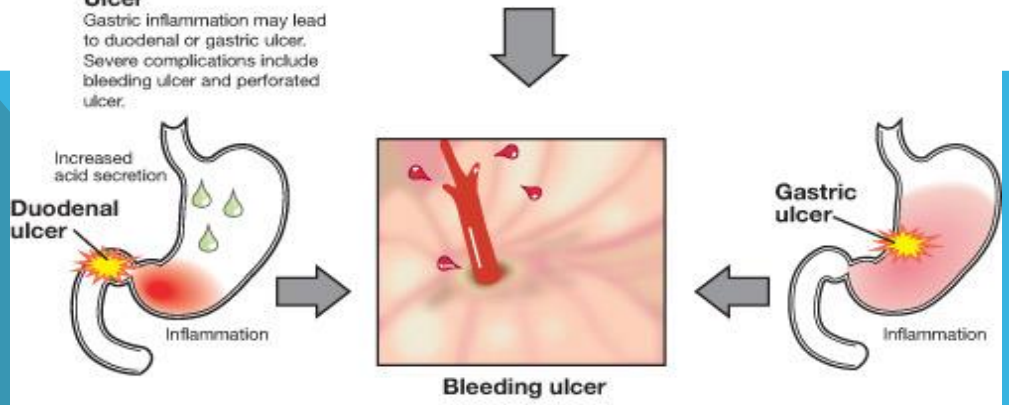


Helicobacter pylori

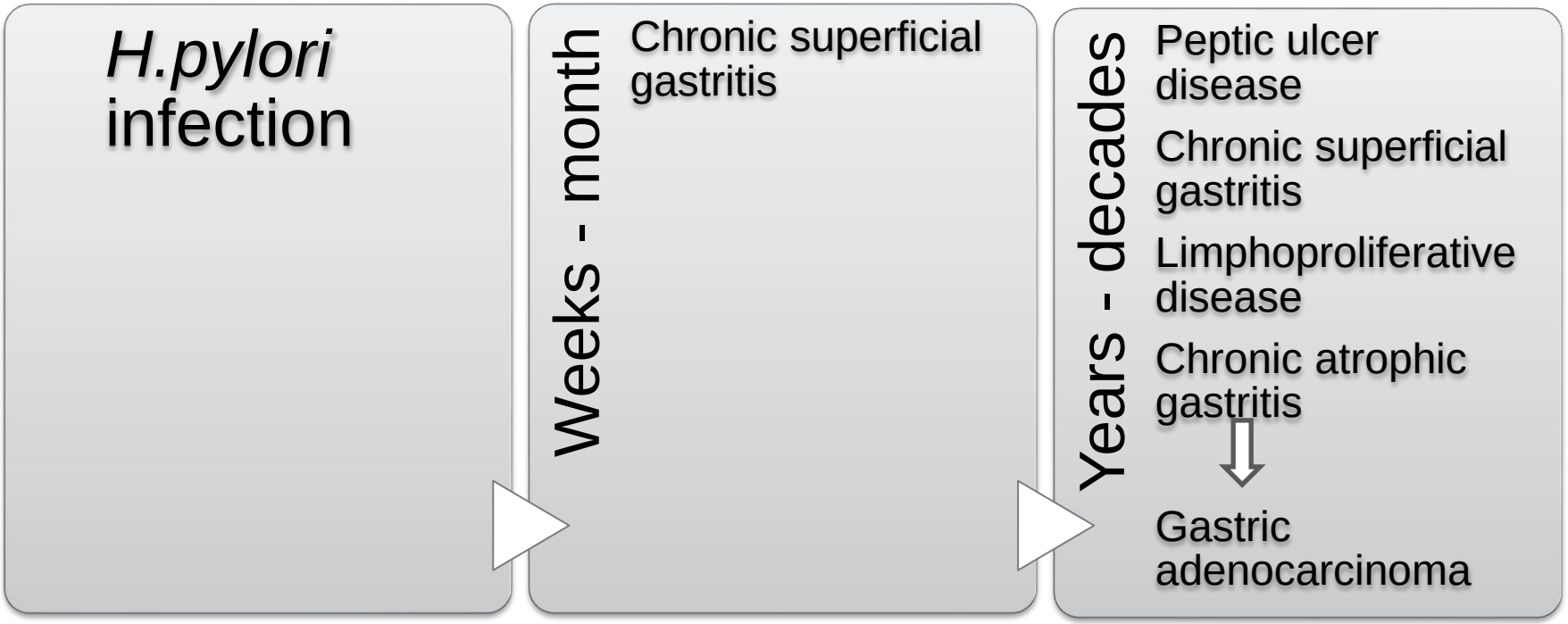
— the bacterium causing peptic ulcer disease



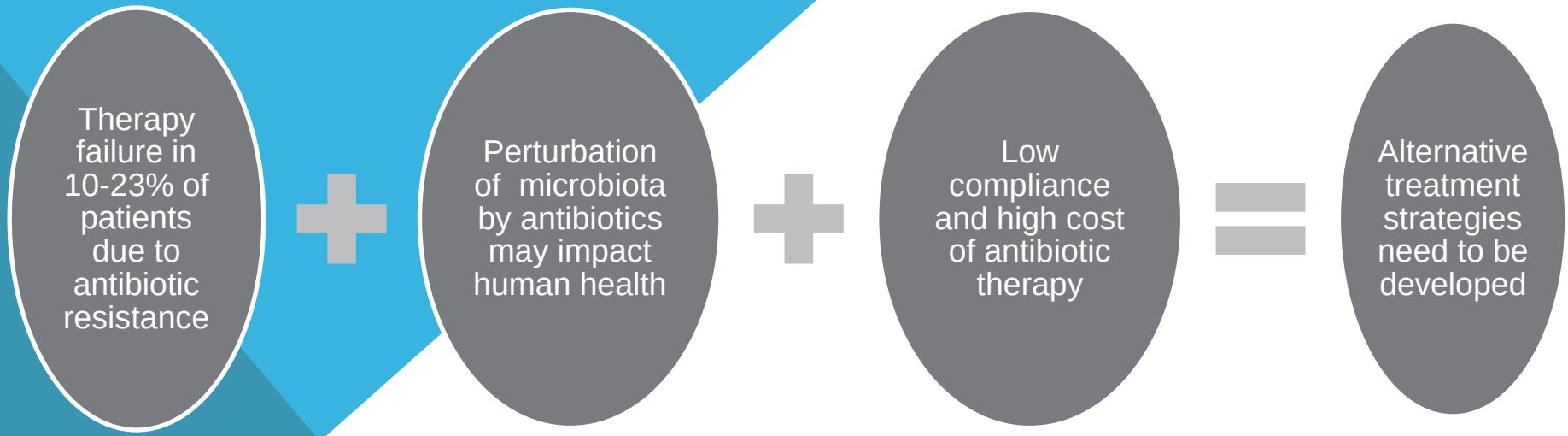




CLINICAL SIGNIFICANCE OF *H. PYLORI*



Traditional *H. pylori* therapy consists of 2 or 3 antibiotics with a PPI



COULD PROBIOTICS BE AN ALTERNATIVE THERAPY?

Probiotics may:

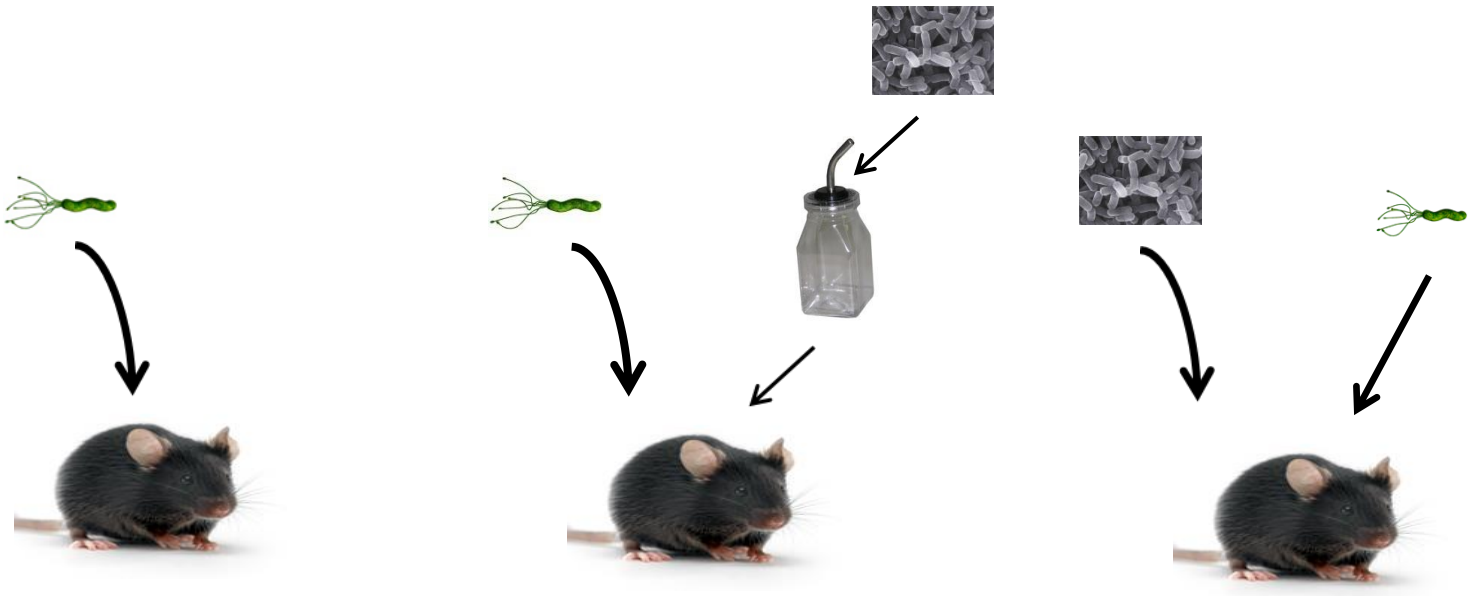
- **Stimulate immune responses**
- **Compete with pathogenic bacteria**
- **Prevent antibiotic side effects**
- **Eradicate *H. pylori* through production of antimicrobial substances like lactic acid, hydrogen peroxide and bacteriocins**

LACTOBACILLUS RHAMNOSUS 925AK

- **Isolated from home-made cheese produced in Uzbekistan**
- **Identified as *L. rhamnosus* according to 16S rRNA sequence**
- **Possesses *in vitro* antimicrobial activity to other local *L. rhamnosus 807* and *L. rhamnosus 176* strains**
- **Supernatant possesses *in vitro* acid-independent, protease-inhibited antimicrobial activity against *H. pylori* clinical isolates**

IN VITRO ANTIHELICOBACTERIAL ACTIVITY OF *L.RHAMNOSUS 925AK*

IN VIVO *L. RHAMNOSUS 925AK* ANTI-HELICOBACTERIAL ACTIVITY ASSAY



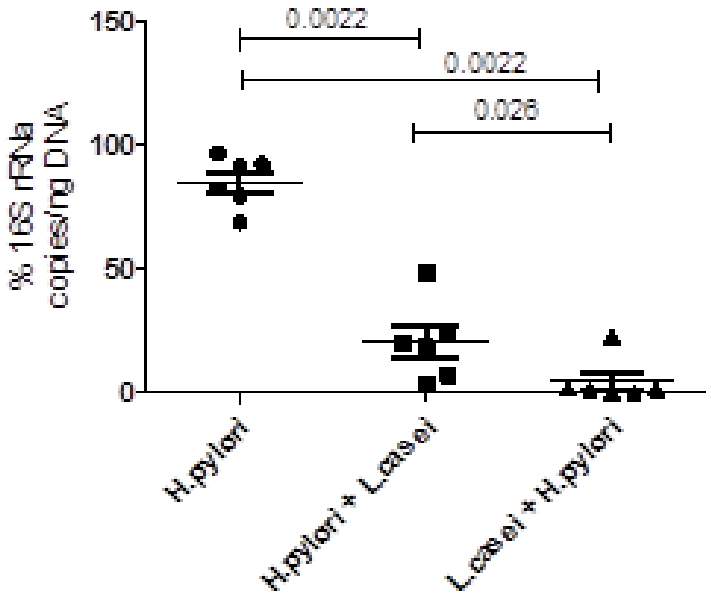
GF mice: Group 1

GF mice: Group 2

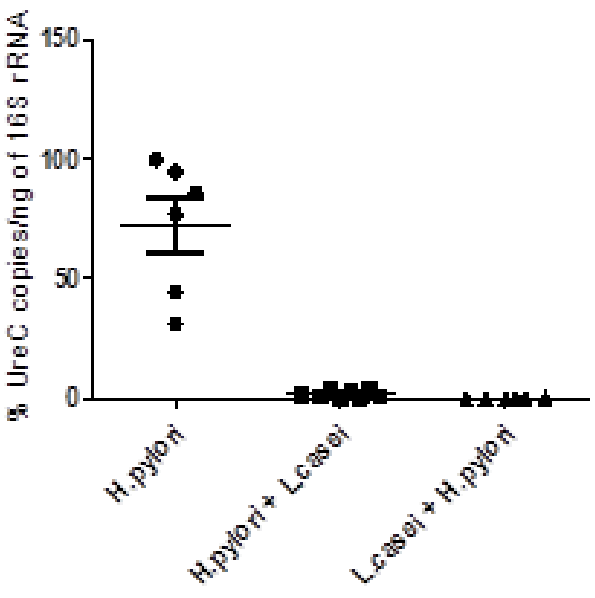
GF mice: Group 3

UNC at Chapel Hill
CGIBD
P.I. Sartor Balfour

H.pylori percentage in the stomach of GF mice at 1 month postinfection



Percentage of H.pylori DNA in stomach tissue of GF mice in 2month



PROPOLIS

Propolis or **bee glue** is a resinous mixture that honey bees collect from tree buds, sap flows, or other botanical sources. It is used as a sealant for unwanted open spaces in the hive. Propolis is used for small gaps (approximately 6 millimeters (0.24 in) or less), while larger spaces are usually filled with beeswax.

OVERARCHING HYPOTHESIS

Combined preparation consisting of Lactobacillus rhamnosus 925ak and ethanol extract of propolis can have both antimicrobial and healing effects on gastric ulcer.

Lactopropolis-0.5 – Lactobacillus rhamnosus 925ak, Propionibacterium avidum, propolis ethanol extract 0.5%

Lactopropolis-1 – Lactobacillus rhamnosus 925ak, Propionibacterium avidum, propolis ethanol extract 1%

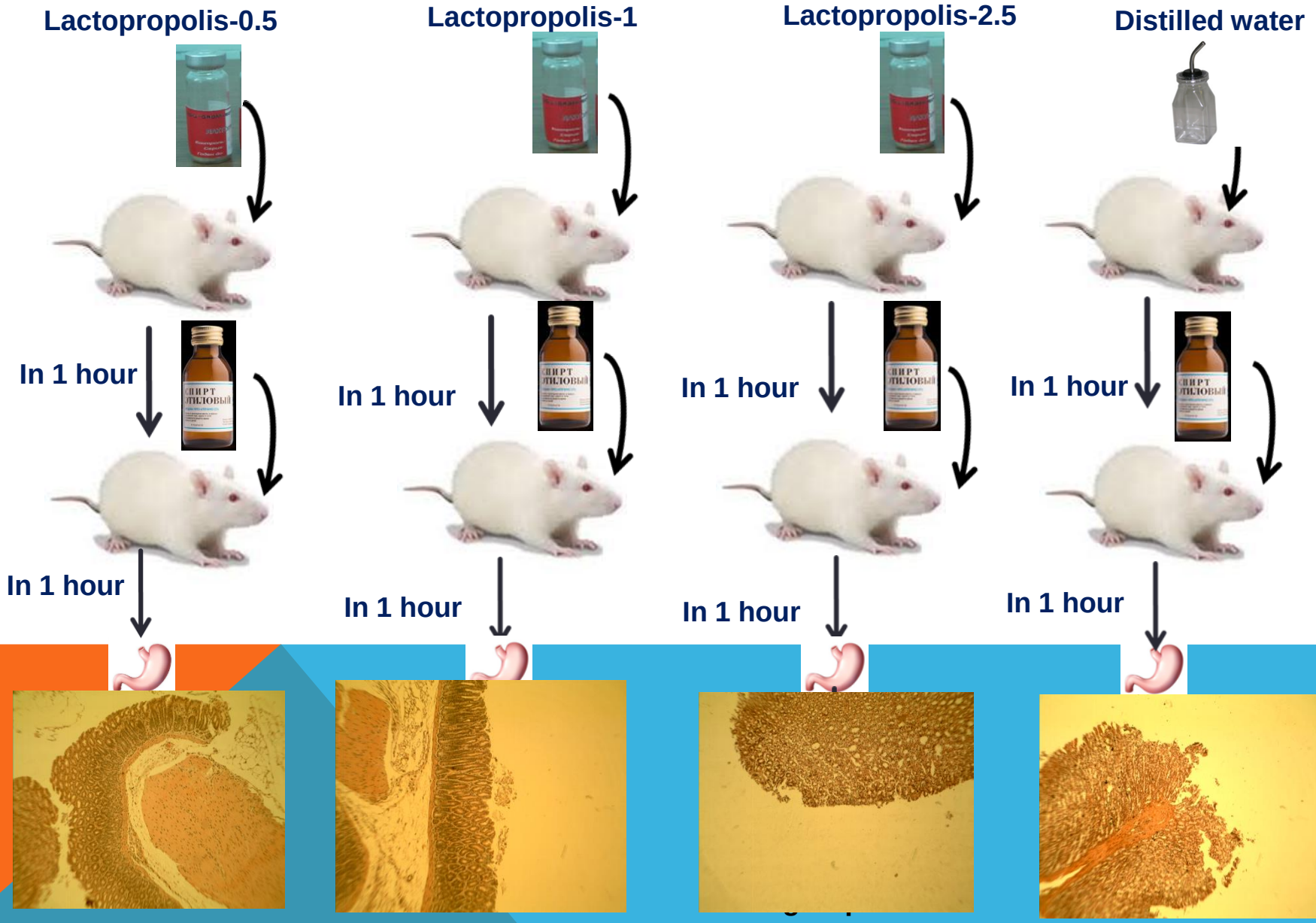
Lactopropolis-2.5 – Lactobacillus rhamnosus 925ak, Propionibacterium avidum, propolis ethanol extract 2.5%

Lactopropionics – Lactobacillus rhamnosus 925ak, Propionibacterium avidum

AREAS OF INVESTIGATION

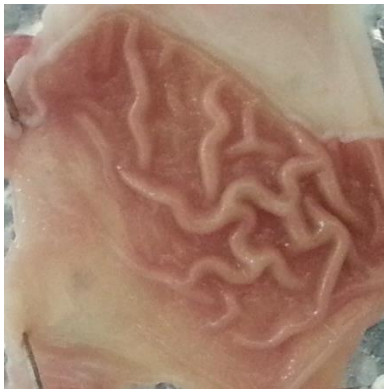
1. **The prevention of experimental gastric ulceration by the "Lactopropolis".**
2. **The treatment of experimental gastric ulcer by the Lactopropolis**

EXPERIMENTAL DESIGN

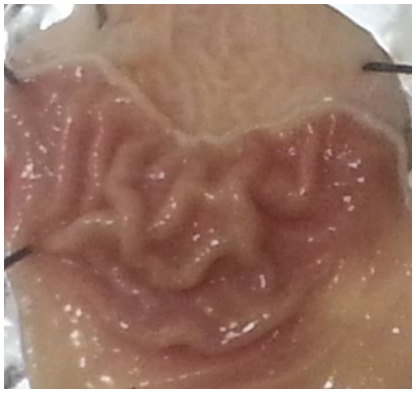


LEVEL OF MUCOSAL INJURY

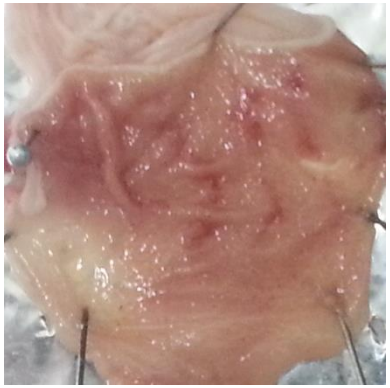
0 – normal gastric mucosa



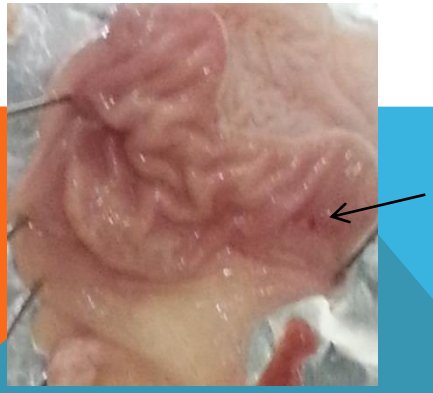
1 – mild hyperemia



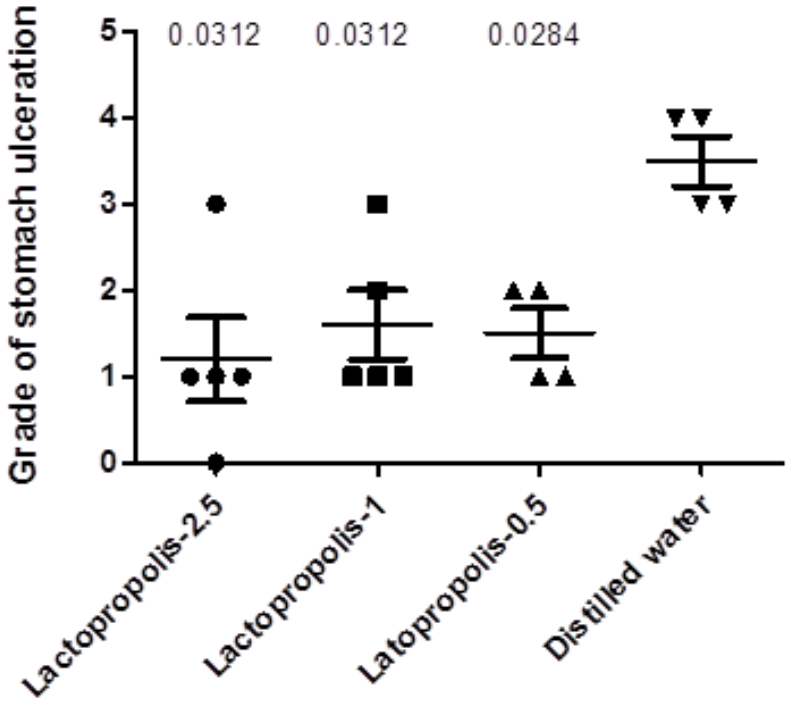
2 – severe hyperemia



3 – hyperemia, small ulcers



4 – one or more big ulcers

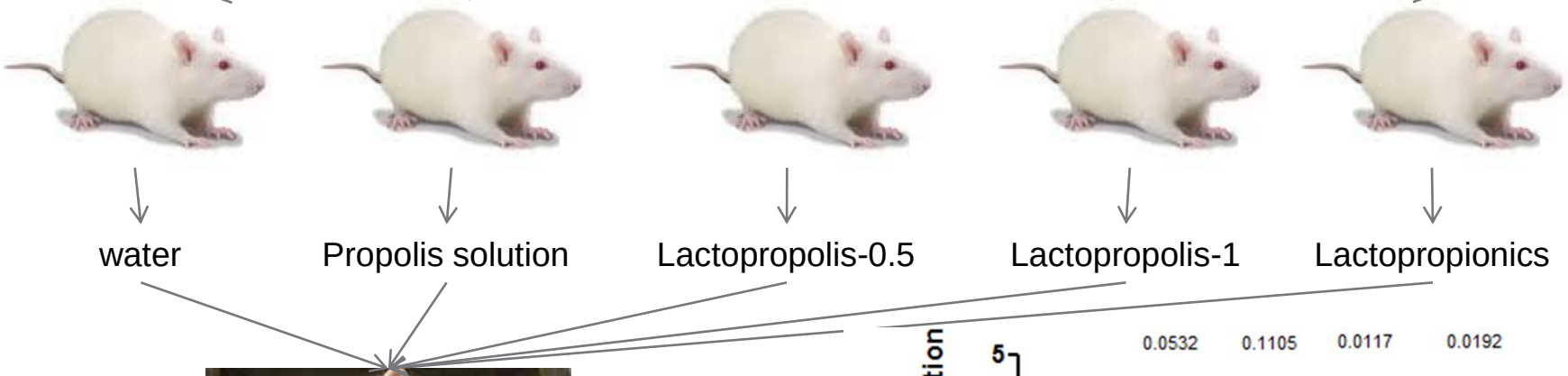

Grade of stomach ulceration
5
4
3
2
1
0
0.0312
0.0312
0.0284
Lactopropolis-2.5
Lactopropolis-1
Latopropolis-0.5
Distilled water

AREAS OF INVESTIGATION

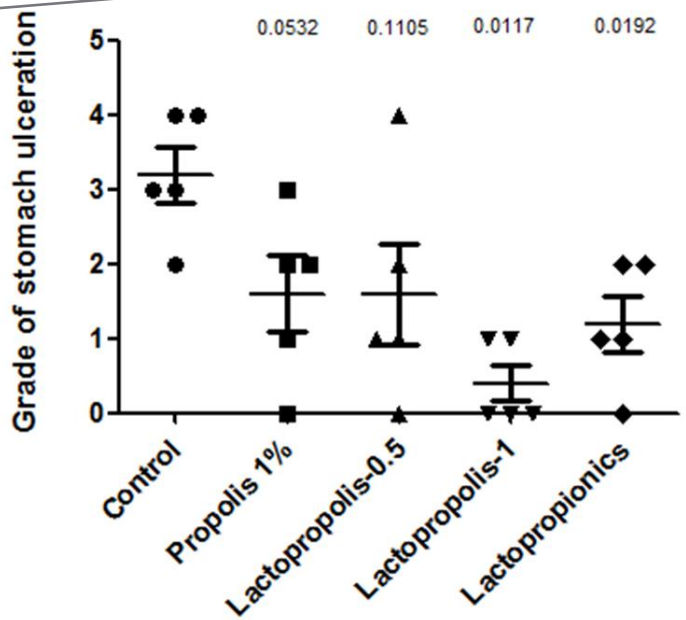
1. The prevention of experimental gastric ulceration by the "Lactopropolis".
2. The treatment of experimental gastric ulcer by the Lactopropolis

EXPERIMENTAL DESIGN

arsenious anhydride + caffein



water | Propolis solution | Lactopropolis-0.5 | Lactopropolis-1 | Lactopropionics



EXPERIMENTAL DESIGN

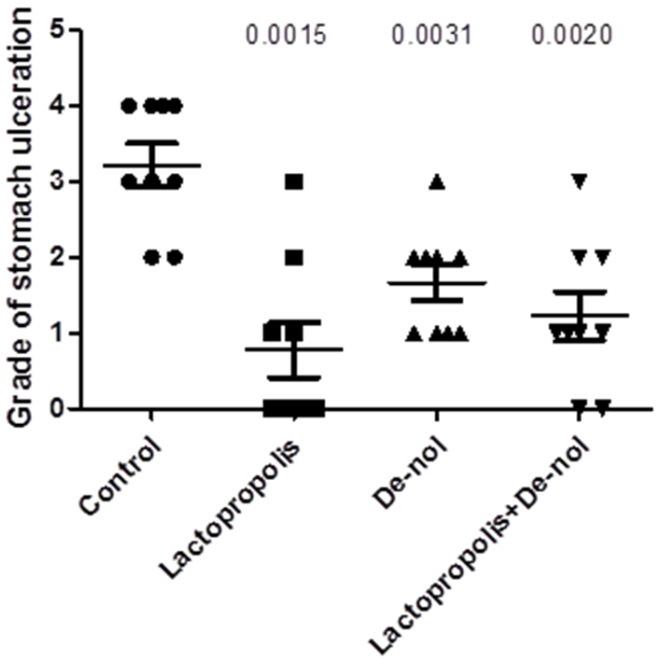
Ethanol 100%

Control

Lactopropolis

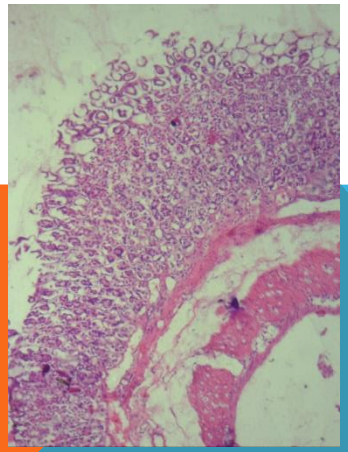
De-nol

De-nol + Lactopropolis

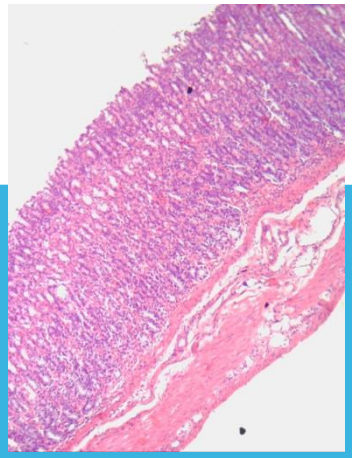


MACRO- AND MICROSCOPIC EVALUATION OF STOMACH MUCOSA

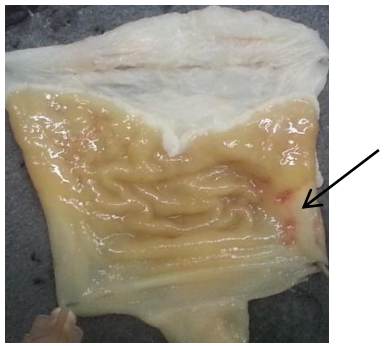
Control

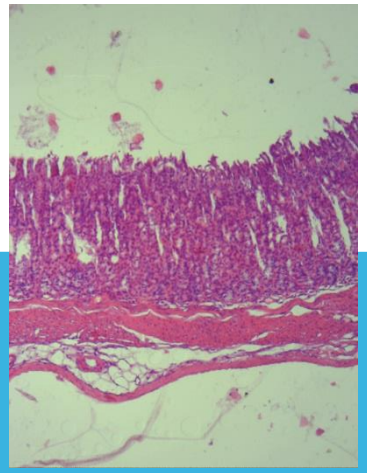


Lactopropolis



De-nol





CONCLUSIONS

«Lactopropolis» has a significant preventive and antiulcer activity in experimental rats. For the prevention of ulceration the “Lactopropolis-2.5” has better effect while for treatmen “Lactopropolis-1” has same efficacy as “Lactopropolis-2.5”.

Treatment with “Lactopropolis” requires less time to heal a mucosal injury rather then treatment with De-nol.

PLANNED EXPERIMENTS

To investigate the ability of “Lactopropolis” to treat the gastric and duodenal ulcer in humans.

Acknowledgements

Institute of microbiology of AS of Uzbekistan:
Ogay D.K.
Kutliyeva G.D,
Sokhibnazarova Kh.A.
Elova N.A.

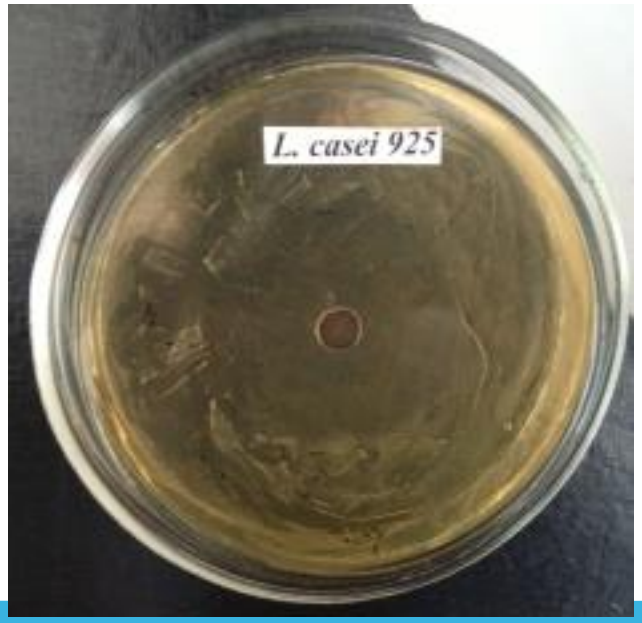
The Tashkent Pharmaceutical institute:
Prof. Aliev Kh.U.
Tulyaganov B.
Saidov S.A.

The Tashkent Pediatric medical Institute
Prof/ Sadriddinov A.F. - histopathologist

Grant support:
STDCC of Uzbekistan
И6-0-15667 (2014-2015)

Thank you for attention

АНТИМИКРОБНАЯ АКТИВНОСТЬ ДЕ-НОЛА



P. avidum

L. rhamnosus