



## Proven Involution of Liver Fibrosis

BIIRIN

# Hepatitis and fibrosis: statistics

- Viral hepatitis infected 5% of the population.
- Even after effective antiviral therapy, the risk of fibrosis remains.
- liver fibrosis of different stages is diagnosed in 7% of patients after 45 years.



**World Health  
Organization**



# Threats to liver fibrosis

- progression and transition to cirrhosis
- due to cirrhosis - stagnation of blood in the portal vein system
- varicose veins of the esophagus
- life threatening bleeding
- ascites, liver failure with an irreversible scenario \*

# Biirin-new hope



Liver cirrhosis was considered incurable, until the molecular mechanisms of its origin and development were thoroughly studied.

International studies confirm that with a systematic approach to treatment, it is possible to regress fibrotic changes and fully restore the structure and function of the liver [1,2].

**BIIRIN**, a unique natural complex of plant peptides and nanoparticles of metals, has been created for the treatment of fibrosis and cirrhosis of the liver, which has proved its effectiveness.

1.Cheng Chi, Xiao-ya Liu, Fei Hou, Xiao-zheng Yu, Chun-yun Li, Li-jian Cui, Rui-xia Liu, Cheng-hong Yin. Herbal compound 861 prevents hepatic fibrosis by inhibiting the TGF- $\beta$ 1/Smad/SnoN pathway in bile duct-ligated rats. BMC Complement Altern Med. 2018; 18: 52. 2.Song X., Liu W., Xie S., Wang M., Cao G., Mao C., et al. (2013). All-transretinoic acid ameliorates bleomycin-induced lung fibrosis by downregulating the TGF-beta1/Smad3 signaling pathway in rats. Lab. Invest. 93 1219–1231.

# Return of the future

**BIIRIN is a natural complex plant peptides and nanoparticles metals which has confirmed its efficiency in correction fibrotic changes in the liver.**



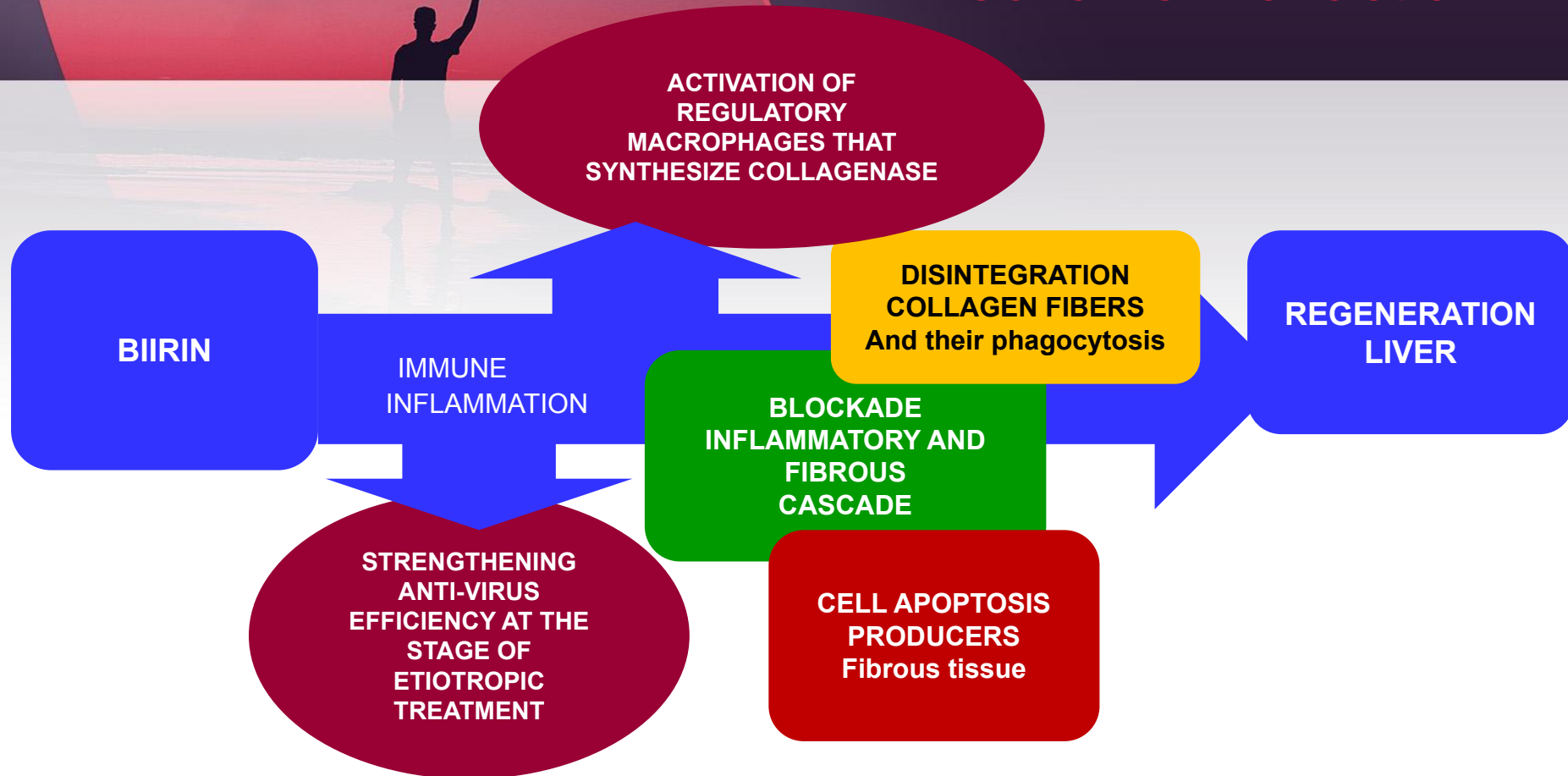
# Mechanism of action

## Biirin acts in a complex:



- destroys the foci of cirrhosis at the micro level
- prevents the development of new fibrotic fibers
- cleans the liver of dead cells
- promotes liver tissue regeneration
- prophylactic oncotransformation of liver cells

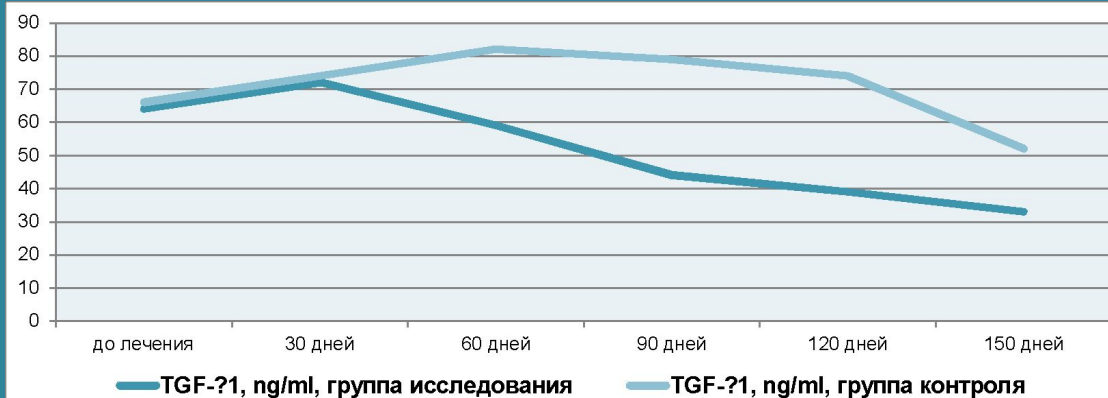
# Mechanism of action





# Clinical experience

**Biirin helps to reduce the expression of TGF- $\beta$ 1 and provides the liver with the necessary conditions for the regression of fibrotic fibers.[1].**

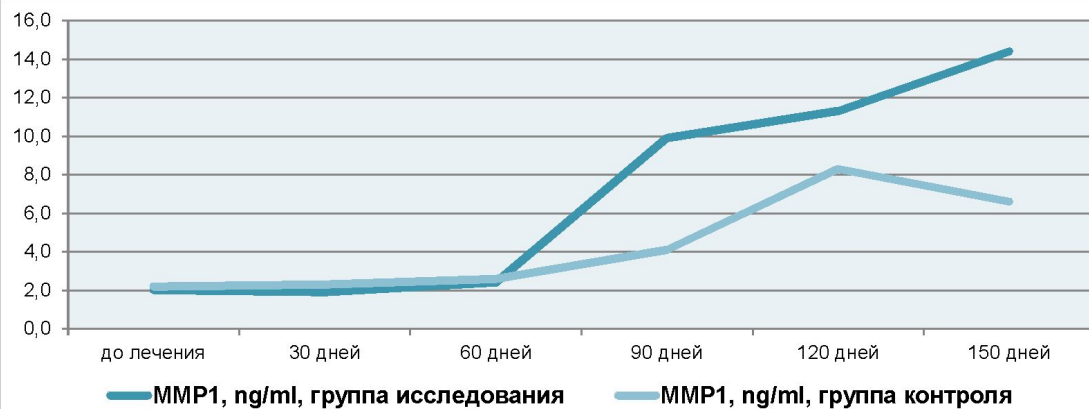


1.А.М.Печинка, А.С.Карданов. Роль антифибротической терапии в лечении хронических гепатитов. Новости медицины и фармации - № 11 (663) - 2018 - С. 6–8



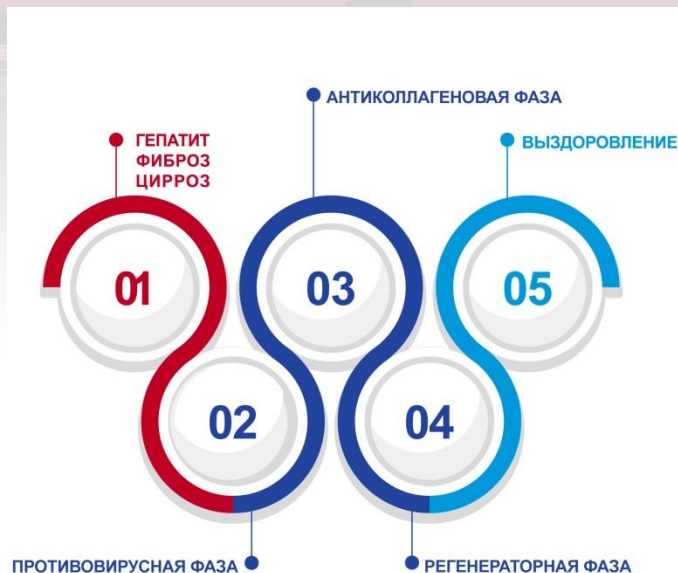
# Clinical experience

**Biirin induces the activation of MMP-1 matrix metalloproteinase, a key antifibrotic factor in liver cirrhosis.[1].**



1.А.М.Печинка, А.С.Карданов. Роль антифибротической терапии в лечении хронических гепатитов. Новости медицины и фармации - № 11 (663) - 2018 - С. 6–8

# BIIRIN: key moment



**Towards full restoration  
liver work the patient goes through 5 stages  
the key of which is the anti-collagen phase.**

**During this phase are provided  
necessary conditions for regeneration  
liver tissue.**

**By inhibiting TGF- $\beta$ 1 and activating MMP-1  
Biirin breaks the pathological cascade  
fibrosis and gives rise to liver recovery.**



BIIRIN returns future plans

CHANCE TO BEGIN LIFE AGAIN