

EnTher

FERMENCOL[®]

Anti-Scar Effect

ZAO Fermencol

Pathologic scars

Collagen is a basis of excessive scar tissue



Keloid scars



Hypertrophic scars



Excessive scar tissue therapy

- **Depression of the proliferative activity of fibroblasts** (glucocorticoids, for instance, phonophoresis with hydrocortisone, injections of dispospan into a scar tissue)
- **Break down of an excessive extracellular matrix – collagen and hyaluronan** (enzymes of hyaluronidase and collagenase, for instance, electrophoresis with lydase or collalysin)

Content

FERMENCOL® is an enzymatic agent made from collagenase of hydrobionts having a pronounced anti-scar effect



A complex of 9 collagenolytic protease with a weight from 23 to 36 kDa

Field of application

Indications

Revision and prevention of hypertrophic and keloid scars after:

- surgery
- wounds
- burns
- acne

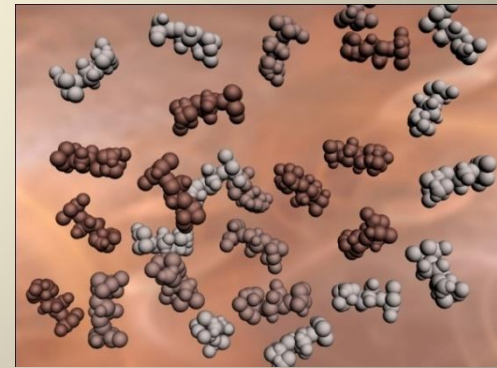
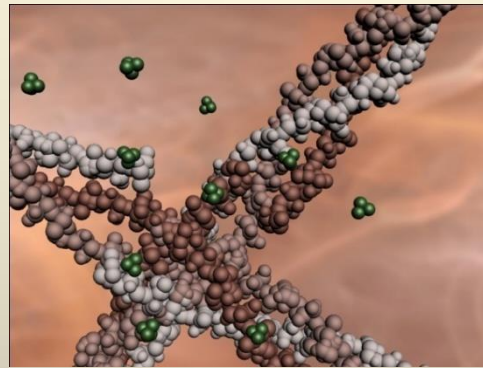
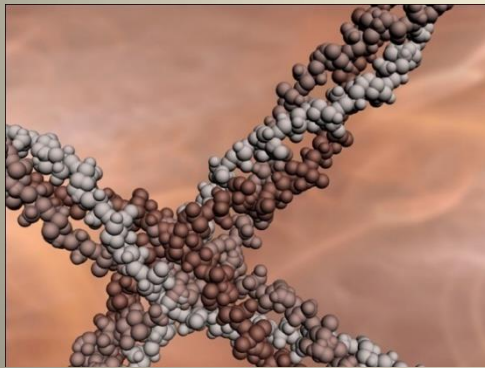
Counter-indications

- allergy to collagenase
- atrophic scars
- hypotrophic scars

Scar reduction mechanism

FERMENCOL® has an integrated effect on all extracellular scar matrix components and shows:

- high collagenolytic activity
- amylolytic activity
- general proteolytic activity



Collagen triple helix breaks down into separate amino acids under the action of Fermencol

Anti-Scar Effect

- Break down of the major components of a scar tissue, i.e. collagen fiber and hyaluronic acid
- Deep hydrolysis of the excessive collagen of a scar tissue
- Selective activity in relation to pathologic collagen
- Reduction in the epidermis and dermis thickness of the scarred skin
- **Anti-Scar Effect** within the shortest time

What happens to the scar due to Fermencol?

- Termination of growth
- Volume loss
- Density reduction
- Elasticity improvement
- Elimination or decrease of itch
- Restoration of normal skin colour
- Normalization of scar tissue hydration

Production forms

ФЕРМЕНКОЛ®



FERMENCOL®
enzymatic correction set

FERMENCOL® gel

Enzymatic correction set



Composition:

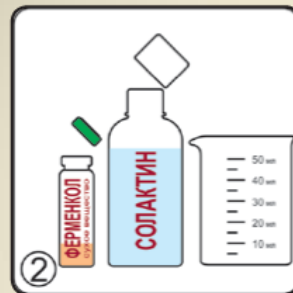
- Fermencol® enzymatic agent, dry active substance – collagenase complex, 4 mg
- Solaktin® agent for enzymatic solution, 40 ml

Method of application

Electrophoresis: course of 10-12 treatments



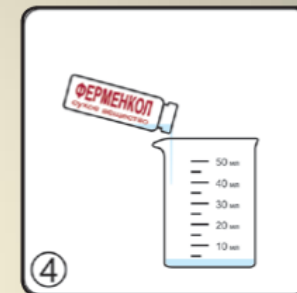
Remove a bottle from a pack. Read carefully the instructions.



Open all the bottles.



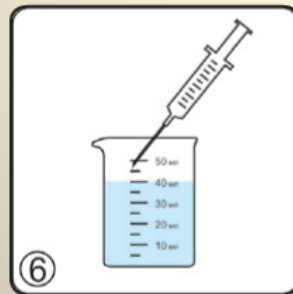
Pour a little quantity of Solaktin® into a bottle of Fermencol®



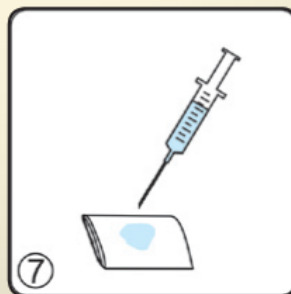
Pour the bottle content into a measuring jar.



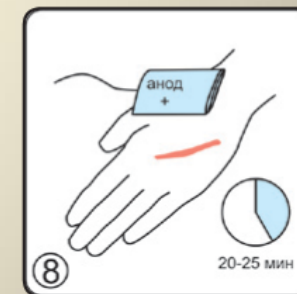
Add a required quantity of Solaktin® according to the Table 1.



Fill the syringe with a required quantity of the solution based on a scar area (0.3-0.5 ml for 1 cm² of a scar tissue).



Moisten the gauze with the solution.



Apply the gauze on the cicatrix. Begin electrophoresis treatment.

Gel

ФЕРМЕНКОЛ®



Content:

- Fermentol® gel 0.01%, 30 g

Methods of application

Phonophoresis: course of 10-15 treatments



Remove the Fermencol® gel from a pack. Read carefully the instructions.



Clean the skin with a cotton pad.



Open a gel tube.



Apply the gel on a scar using light movements.



Phonophoresis treatment

Methods of application

Applications: 30-40 day course



Remove the Fermencol® gel from a pack. Read carefully the instructions.



Clean the skin with a cotton pad.



Open a gel tube.



Apply the gel on a scar using light movements.



Do not rub

Results

Parameters as per scar scale before and after electrophoresis treatment with Fermencol

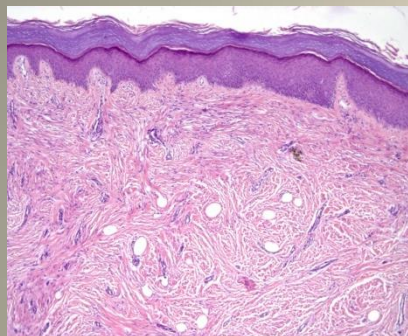
Age of scar		Type of scar	Scar consistency	Scar colour	Subjective sensations
Up to 12 months	Before	2,4	1,6	1,4	1,3
	After	1,6	0,9*	1,0	0,6
Older than 12 months	Before	2,2	1,5	1,2	1,7
	After	2,3	1,3	0,7	1,0

*«Evaluation of Fermencol application efficiency for prevention and revision of scars» (S.G. Kuzmin, A.V. Samtsov, Military Medical Academy, St. Petersburg, 2008)

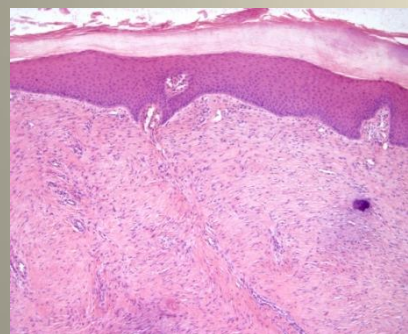
*«Evaluation of Fermencol application efficiency and safety for treatment, revision and prevention of scars» (V.O. Matytsyn, MAPO, T.N. Karpova, Military Medical Academy, St. Petersburg, 2009)

Results

Morphometric parameters of scar tissue before and after Fermencol treatment course



BEFORE



AFTER

Skin layers	Before	After
Epidermis (average thickness)	0,40 mm	0,29 mm
Stratum corneum (average thickness)	0,17 mm	0,10 mm
Cell elements	not enlarged	not enlarged
Dermis		
Stratum papillare (average thickness)	0,483 mm	0,346 mm
Height of papillae (average)		
Cell elements per 1 mm ²	0,130 mm	0,142 mm
• fibrocytes	2044	1881
• lymphocytes	few	few
• microcirculatory vessels per 1 mm ²	78,2	38,9
- summary section area, %	14,6	10
Reticular layer		
• fibroblasts and fibrocytes per 1 mm ²	1466,4	2005 (mainly fibrocytes)
• lymphocytes	few	single
• microcirculatory vessels per 1 mm ²	58,7	25,6
- summary section area, %	15,8	6,2

*«Clinical and histomorphological features of children's scar tissue during Fermencol preparation treatment» (K.A. Afonichev, O.V. Filippova, I.N. Krasnogorsky, FGU Turner Scientific and Research Institute for Children's Orthopedics, St. Petersburg, 2010)

Experience

Hypertrophic scar revision

Before



After application
with Fermencol



Experience

Hypertrophic scar revision

Before



After electrophoresis
with Fermencol



Experience

Dupuytren's contracture therapy

Before

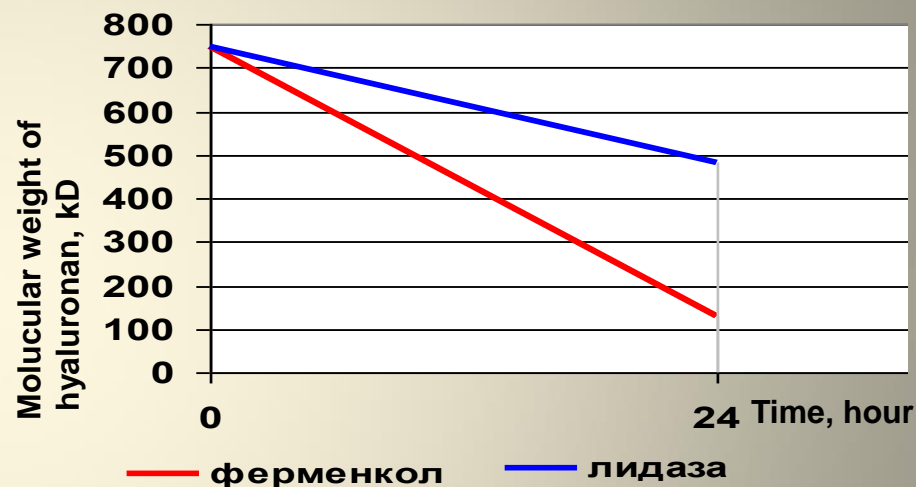
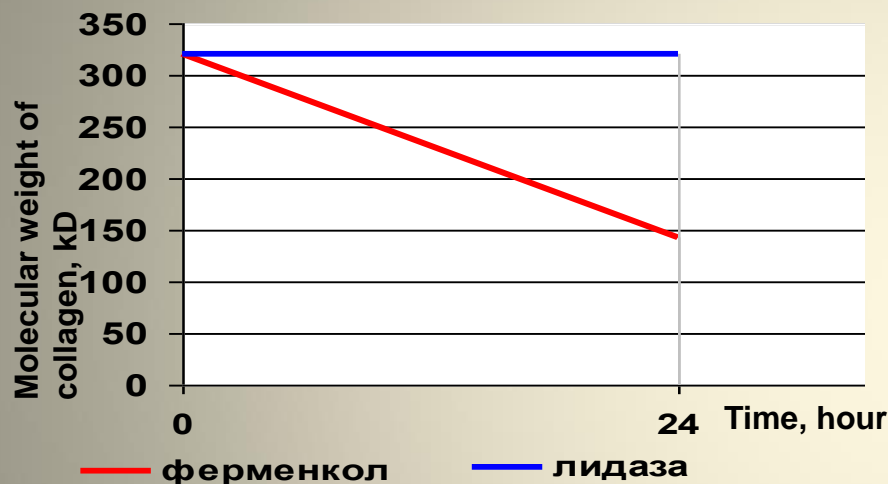


After
phonophoresis
with Fermencol



Comparative analysis

Evaluation of collagenase and hyaluronidase preparation efficiency in vitro ($t^0 = 22^{\circ}\text{C}$)



Conclusions:

- Fermencol has a high amylytic activity
- Lydase does not have a collagenolytic activity
- Fermencol can be used as monotherapy

*«Comparative evaluation of the collagen and hyaluronan hydrolysis depth in vitro using collagenase and hyaluronidase preparations», (I.I. Turkovsky, B.A. Paramonov, S.F. Antonov, Bulletin of experimental biology and medicine, No.7, Moscow, 2008)

Comparative analysis

Evaluation of collagenase preparations efficiency in vitro

- Proteolytic activity for Azocazein hydrolysis and BAPNA substrate
- Collagenolytic activity for Collagen Type I and IY hydrolysis (Mandl reaction)
- Amylolytic activity using Caraway's method (starch hydrolysis)

Preparation for comparison	Collagenolytic activity	Amylolytic activity
Collagenase KK	↓ by a factor of 3.9	↓ by a factor of 2.6
Collagenase	↓ by a factor of 5.3	↓ by a factor of 3.0
Collalysin	↓ by a factor of 7.6	↓ by a factor of 6.2

FERMENCOL®

- Affects all component of scar tissue
- Ensures intensive and full hydrolysis of collagen
- Can be used as monotherapy

* «Application of collagenase preparations for wound and scar treatment», (S.V. Bondarev, Synopsis of Thesis Military Medical Academy, St. Petersburg, 2008)

Course price

For 10 m2 scar revision

Production form	Method of application	Duration of course	No of packs	Course price
Fermencol® Enzymatic correction set	Electrophoresis	10-12 treatments	2	1400-1500 rubles
Fermencol® Gel	Phonophoresis	10-15 treatments	1	1000-1100 rubles
Fermencol® Gel	Application	30-40 days	1	1000-1100 rubles

EnTher

Thank you for attention!

Fermencol.ru

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