

# NEW SPHERES FOR APPLICATION OF INJECTIVE MEDICINAL FORMS OF THE ALLOPLANT BIOMATERIAL

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**Abstract:** The Russian Eye and Plastic Surgery Center has developed a series of the dispersive forms of the Alloplant biomaterial (Muldashev E.R., 2002). Taking into account, that the usage of the biomaterials gives a wider prospect of application in various lesions of dermal integuments, we carried out purposeful experimental investigations, which allowed to substantiate new spheres of their applications. As a result of the investigations the specified biomaterials are adapted for injective surgery.

**Key words:** Alloplant biomaterial, injective surgery, lesions of dermal integument, angiogenesis, phagocytosis, regeneration, augmentation, pigmentary exchange, injective contour plastics.

The Russian Eye and Plastic Surgery Center has developed a series of the dispersive forms of the Alloplant biomaterial (Muldashev E.R., 2002). Taking into account, that the usage of the biomaterials gives a wider prospect of application in various lesions of dermal integuments, we carried out purposeful experimental investigations, which allowed to substantiate new spheres of their applications. As a result of the investigations the specified biomaterials are adapted for injective surgery.

**1. Angiogenesis stimulator (vasculogenesis).** It possesses pronounced angioiductive properties due to the high content of such glycozaminoglycan as heparan-sulfate (Hasanov R.A., 1999). The stimulator is used when there are such diseases of dermal integuments which cause trophic disorders, vascular changes, eschemization (necrotic vasculitis, necrotic urticaria-like vasculitis, Schonlein-Henoch hemorrhagic vasculitis, periarteritis nodosa (Kussmaul-Maier disease), Kaposi's pseudo-sarcoma. The transplant can itself be used in a combination with various kinds of the biomaterials to activate metabolism. There is possible a combination with antibacterial medicines depending on the indications.

**2. Phagocytosis stimulator.** The transplant selectively stimulates a phagocytizing activity. It can be applied when the case requires resorption of fibrous structures, removal of the products of the enzymatic degrade of the extracellular matrix elements (scleroderma, psoriasis, sclerosing

lichen, Ehlers-Danlos syndrome, Afzelius-Lipschutz erythema, senile elastosis, solar elastosis, pseudoelastic xanthoma, ring-shaped granuloma, hyalinoses, amyloidoses, sarcoidoses).

**3. A stimulator of regeneration.** It activates the processes of the fibroblasts proliferation, normalizes epithelial-connectivetissular interaction (atrophic cicatrices, dermal lesions and mucous membranes affections accompanied by the disorder of the epithelial integuments integrity, trophic ulcers, toxic acute epidermolysis, ectodermal dysplasia). Alloplant is diluted using the antibiotics if indicated.

**4. Dispersive Alloplant biomaterial (DAB) for augmentation.**

The transplant has a cellular structure and is used when it is required to preserve the volume and form of the compensated tissues for a long time. This is the list of the indications to use DAB in cases of augmentation:

- pronounced mimic wrinkles in folds (wrinkles of the orbital area, deep wrinkles on the forehead, wrinkles around the mouth, evident nasolabial folds, etc.);
- volume increase of soft tissues as the result of changes or atrophy (thinned lips, retraction of lips);
- post-traumatic aesthetic defects connected with lack of tissue occurring after wounds, inflammations, etc.

The transplant contains all the components which can be found in any healthy human skin hyaluronic acid, collagen, elastin, glycozaminoglycanes. Therefore the transplant not only mechanically makes up the volume in the troublesome regions of the skin, but also substitutes structural components lost with age which are inherent in healthy skin. As a result of that dermal defects get repaired, fine wrinkles gradually disappear. Moreover, this Alloplant biomaterial has a unique property to preserve its initial volume during a long time and it has no analogues.

**5. DAB used to normalize pigmentary exchange.** The indications are represented by many diseases with a pigmentary exchange disorder (pigmentary progressing chronic purpura, etc.).

**6. The use of the Alloplant in injective contour plastics.** It is applied in cases of congenital, acquired (posttraumatic, postoperative) defects of soft tissues, including hemiatrophies, facial lipodystrophy, sclerodermia in a combination with a phagocytosis stimulator.

Pathology	Preparation
Fine superficial wrinkles affecting only the outer layer of skin	Alloplant for augmentation - filling
Smoothing out the deeper wrinkles affecting the middle of the dermal layer	Alloplant for augmentation – suture
Deep wrinkles, folds	Alloplant for augmentation – volumetric
Correction of forms and size of the lips, giving	Combination of different kinds of DAB for

them volume. Wrinkles around the lips. Folds at the angles of the mouth.	augmentation.
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All the produced materials are of the biological origin, and have low antigenic properties and have gone through registration in the Ministry of Health of the Russian Federation. At present the Russian Eye and Plastic Surgery Centre of carries out all-round clinical tests, and the future results will make a subject of the succeeding publications.