

EMBRYONIC STEM CELLS IN AMYOTROPHIC LATERAL SCLEROSIS

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Depth, quality and specificity of Cell Therapy effects in many conditions and diseases are far beyond the capacity of any other modern method

CELL THERAPY is administration of embryonic cell suspensions containing stem cells that

- remain to live there;
- allocate in tissues and organs;
- produce generations of new cells;
- restore functional activity of tissues and organs.

Indications for treatment

Before 2000:

- Progressive course of the disease (decrease of Karnofsky Index by more than 20% within last 6 months).
- Ineffectiveness of routine treatment.

After 2000:

Confirmed ALS.

Contraindications in ALS

1. Respiratory manifestations – stage III respiratory insufficiency.
2. Inability to swallow, G-tube.
3. Duration exceeding 3 years.

Embryonic stem cells are capable of migration, establishment of intercellular links, proliferation, differentiation, and response to effects.

They can produce considerable amounts of biologically active substances, e.g. hematopoietic growth factors, interleukins, nerve growth factor, tumor necrosis factor, angiogenic and neutrophilic factors etc.

ESC-related Contraindications

1. Exacerbated vasculitis: capillaritis, phlebitis, arteritis (ESC transplantation is possible after active treatment resulting in remission, after 3 months).
2. Acute thromboses (treatment is possible not earlier than after 3-6 months).
3. Acute hemophthalm (treatment is possible after 3 months).
4. Expressed pulmonary hypertension secondary to vasculitis, thromboses, pneumonia, development of acute or subacute pulmonary heart.
5. Myelocarcinosis, myelofibrosis.
6. Terminal stage of the disease (expressed intoxication, advanced metabolic dysfunctions and decompensation of internal organs).
7. Chronic infection lesions (preliminary treatment is required).

Embryonic stem cells are characterized by weaker immune response than mature cells due to late expression of histocompatibility antigens in the process of maturation.

Embryonic stem cells contain much lower counts of highly effective cells such as leukocytes, endothelium of vessels, dendrite cells etc.

During the embryonic period, transplants do not have mature lymphocytes, and are tolerated by recipients.

At present, applied are suspensions prepared from embryonic brain, bone marrow, liver, spleen, thymus, pancreas, and culocutaneous graft.

Diagnosis was confirmed by neurologists from different countries - USA, Germany, Italy, Greece, India, Russia, Ukraine, Sweden - on the basis of

- Clinical manifestations (UMN signs and LMN signs in three regions)
- Electromyography (EMG) and nerve conduction studies
- Magnetic Resonance Spectrography (MRS)

and rarely

- Cerebrospinal fluid analysis (CSF) (8)
- Muscle biopsy (5)
- DNA assay (4)

ALS patients received the following treatment

| | | N of Patients | (%) |
|-----------------------|-----------------------------------|---------------|-----|
| Glutamate antagonists | Rilutek/Riluzole | 25 | 40 |
| Antioxidants | Vitamin E, | 42 | 68 |
| | Creatine | 28 | 45 |
| | Selenium | 14 | 23 |
| | Coenzyme Q10 | 23 | 37 |
| | Brain-derived neurotrophic factor | 4 | 6 |
| | Interferon | 8 | 12 |
| | Baclofen | 39 | 62 |
| | Carbocisteine | 14 | 23 |
| | Amitriptyline | 22 | 35 |

Classification of ESC-treated ALS patients by duration of the disease

| Years | Number of Patients | Percentage (%) |
|-------------------|--------------------|----------------|
| Less than 1 year | 10 | 16 |
| Less than 2 years | 19 | 31 |
| Less than 3 years | 29 | 47 |
| More than 3 years | 4 | 6 |
| Total: | 62 | 100 |

Classification of ESC-treated ALS patients by clinical forms

| | Number of Patients | % |
|--|--------------------|-----|
| 1 Classical ALS (involvement of upper and lower motor neurons) | 30 | 49 |
| 2 Primary lateral sclerosis (involvement of upper motor neurons only) | 2 | 3 |
| 3 Progressive bulbar palsy (degeneration of lower motor neurons: dysarthria, dysphagia, affected chewing and swallowing) | 12 | 19 |
| 4 Progressive muscular atrophy (degeneration of lower motor neurons) | 4 | 7 |
| Combined form (1+3)-5, (4+3)-2 | 7 | 11 |
| Family ALS | 7 | 11 |
| Combination with other autoimmune diseases: | 5 | |
| Non-specific ulcerative colitis | 1 | |
| Poecilia | 1 | |
| Rheumatoid arthritis | 1 | |
| Total | 62 | 100 |

Classification of ESC-treated ALS patients by predominant neurological symptoms

| Form | Number of Patients | % |
|-----------------|--------------------|-----|
| Bulbar | 12 | 19 |
| Cervicothoracic | 29 | 47 |
| Lumbosacral | 14 | 23 |
| Combined | 7 | 11 |
| Total: | 62 | 100 |

SMears of cell suspension containing mesenchymal embryonic cells. Clear images of mononuclear cells

| PROPERTIES OF GENETICALLY HOMOGENEOUS EMBRYONIC STEM CELLS | | | |
|--|------------|------------|---------------------------|
| AGE TYPES | ECTODERMAL | ENDODERMAL | |
| 4-8 weeks | | | |
| MESENCHYMAL | | | |
| • Fibroblastic | | | |
| • Non-fibroblastic | | | |
| • Endothelial | | | |
| SOURCES | | | |
| • Embryonic tissue | | | |
| • Embryonic organ | | | |
| • Embryonic tissue culture | | | |
| • Embryonic mesoderm | | | |
| • Embryonic mesoderm | | | |
| CELL SORTING (FACS) PATIENTS | | | |
| CHARACTERISTICS OF THE ADMINISTERED SUSPENSIONS | | | |
| CELL COUNT | | | 1-10x10 ⁶ /ml |
| MONONUCLEAR CELL COUNT | | | 1-10x10 ⁶ /ml |
| CFU | | | 30-10000 |
| CD34 | | | 15-20x10 ⁶ /ml |
| AXON-FORMING CELLS | | | 10-15x10 ⁶ /ml |
| SYNAPTIC FORMING CELLS | | | 20-40x10 ⁶ /ml |
| DURATION OF THE TREATMENT | | | 4 DAYS |
| TRANSPLANTATION | | | |
| ADMINISTRATION OF CELLS | | | • VIA DROP FIELD |
| • SURGICAL | | | |
| NUMBER OF TRANSPLANTATIONS | | | 3-6 |

SYNDROME OF EARLY POST-TRANSPLANT IMPROVEMENT

(described by Alexander I. Smikodub in 1993)

1 stage of EC-suspension effect – suspension stage
(cytokines, endorphins, biogenic amines, macrocytic arterial hyperemia);

develops in 12-24 hours after transplantation;
duration reported - 1-4 weeks;
by 42 patients (67%) as:

Clear end of this period was reported by 27 patients (44%), the main criterion being emotional.

| Clinical Symptoms | Number of Patients | % |
|--|--------------------|----|
| decreased weakness | 33 | 54 |
| improved appetites | 16 | 26 |
| reduced fasciculatory activity | 25 | 41 |
| reduced spasticity | 17 | 27 |
| improved sleep formula | 20 | 32 |
| decreased manifestations of depression | 21 | 34 |

Main Symptoms of Bulbar ALS in Post-Transplant Period

| | | Duration of the disease/Number of patients (10) | | | | | | | | | |
|----------------------------|--|---|-------|--------|-------|--------|-----------------------|--------|-------|--------|-------|
| | | Less than 1 year (5) | | | | | Less than 2 years (5) | | | | |
| | | Before | After | Before | After | Before | After | Before | After | Before | After |
| | | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| Dysarthria | | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| Dysphagia | | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| Respiratory | | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| Respiratory on the tongue | | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| Tongue atrophy | | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| Chewing difficulties | | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| Dysphagia | | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| Regeneration of the tongue | | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| Hypertrophy | | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |

Note: 0-absent; 1-slight; beginning; 2-expressed; evident; definite; 3-markedly expressed, no function

Immunological blood count of patients with ALS

| Time of observation | Before TBC | After the administration | After 1 month | After 2 months | After 3 months | After 4 months |
|---|---------------|--------------------------------|---------------|----------------|----------------|----------------|
| n | 11 | 11 | 11 | 11 | 11 | 11 |
| Leucocytes (C/1000, %) | 6,740.00 | 6,740.00 | 6,800.11 | 6,750.00 | 6,800.00 | 6,700.11 |
| T lymphocytes (C/100, %) | 3,200.00 | 3,200.00 | 3,200.11 | 3,200.00 | 3,200.00 | 3,200.11 |
| T helper (C/100, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| T suppressor (C/100, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Monocytes (C/1000, %) | 6,740.00 | 6,740.00 | 6,800.11 | 6,750.00 | 6,800.00 | 6,700.11 |
| Neutrophils (C/1000, %) | 6,740.00 | 6,740.00 | 6,800.11 | 6,750.00 | 6,800.00 | 6,700.11 |
| Eosinophils (C/1000, %) | 6,740.00 | 6,740.00 | 6,800.11 | 6,750.00 | 6,800.00 | 6,700.11 |
| Basophils (C/1000, %) | 6,740.00 | 6,740.00 | 6,800.11 | 6,750.00 | 6,800.00 | 6,700.11 |
| Platelet to red cell ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to lymphocyte ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to neutrophil ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to monocyte ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to eosinophil ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to basophil ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total leukocyte ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total erythrocyte ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total hemoglobin ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total hematocrit ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total mean corpuscular volume ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total mean corpuscular hemoglobin ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total mean corpuscular hemoglobin concentration ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total red cell distribution width ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet distribution width ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to red cell ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to lymphocyte ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to neutrophil ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to monocyte ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to eosinophil ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to basophil ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total leukocyte ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total erythrocyte ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total hemoglobin ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total hematocrit ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total mean corpuscular volume ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total mean corpuscular hemoglobin ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total mean corpuscular hemoglobin concentration ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total red cell distribution width ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet distribution width ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to red cell ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to lymphocyte ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to neutrophil ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to monocyte ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to eosinophil ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to basophil ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total leukocyte ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total erythrocyte ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total hemoglobin ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total hematocrit ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total mean corpuscular volume ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total mean corpuscular hemoglobin ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total mean corpuscular hemoglobin concentration ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total red cell distribution width ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet distribution width ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to red cell ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to lymphocyte ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to neutrophil ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to monocyte ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to eosinophil ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to basophil ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total leukocyte ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total erythrocyte ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total hemoglobin ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total hematocrit ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total mean corpuscular volume ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total mean corpuscular hemoglobin ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total mean corpuscular hemoglobin concentration ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total red cell distribution width ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet distribution width ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to red cell ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to lymphocyte ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to neutrophil ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to monocyte ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to eosinophil ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to basophil ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to total leukocyte ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to total erythrocyte ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to total hemoglobin ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to total hematocrit ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to total mean corpuscular volume ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to total mean corpuscular hemoglobin ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to total mean corpuscular hemoglobin concentration ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to total red cell distribution width ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to total platelet distribution width ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to total platelet to red cell ratio ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to total platelet to lymphocyte ratio ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to total platelet to neutrophil ratio ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to total platelet to monocyte ratio ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to total platelet to eosinophil ratio ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to total platelet to basophil ratio ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to total platelet to total leukocyte ratio ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to total platelet to total erythrocyte ratio ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to total platelet to total hemoglobin ratio ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to total platelet to total hematocrit ratio ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to total platelet to total mean corpuscular volume ratio ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to total platelet to total mean corpuscular hemoglobin ratio ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to total platelet to total mean corpuscular hemoglobin concentration ratio ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to total platelet to total red cell distribution width ratio ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to total platelet to total platelet distribution width ratio ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to total platelet to total platelet to red cell ratio ratio ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to total platelet to total platelet to lymphocyte ratio ratio ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to total platelet to total platelet to neutrophil ratio ratio ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to total platelet to total platelet to monocyte ratio ratio ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to total platelet to total platelet to eosinophil ratio ratio ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to total platelet to total platelet to basophil ratio ratio ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Platelet to total platelet to total platelet to total platelet to total platelet to total platelet to total platelet to total leukocyte ratio ratio ratio ratio ratio ratio ratio ratio (C/1000, %) | 1,600.00 | 1,600.00 | 1,600.11 | 1,600.00 | 1,600.00 | 1,600.11 |
| Plate | | | | | | |