

STATE INSTITUTE OF RHEUMATOLOGY
OF RUSSIAN ACADEMY OF MEDICAL SCIENCES

**State Institute
of Rheumatology
of RAMS**

50

1958 - 2008

STATE INSTITUTE OF RHEUMATOLOGY OF RUSSIAN ACADEMY OF MEDICAL SCIENCES

State Institute of Rheumatology of Russian Academy of Medical Sciences, founded in 1958, is a leading center for the development of new methods of diagnostics and treatment of patients with rheumatic diseases.

The staff of the Institute consists of 135 highly qualified specialists including 2 Academicians of RAMS, 50 Professors and M.D. and 67 Candidates of Medical or Biological Sci.

Basic activities of the Institute lie in the field of the therapy of rheumatoid arthritis, spondyloarthritis, osteoarthritis, osteoporosis, systemic connective tissues diseases (systemic lupus erythematosus, systemic scleroderma, Sjogren's syndrome et al.), surgery of bone-articular deformities, endoprosthetics of large joints and small hand joints, articular arthroscopy.

To render medical assistance for in-patients the Institute possesses five rheumatic departments, orthopedic surgery, pediatric and outpatient departments. Annually more than 45000 of patients from all regions of Russia obtain therapeutic and diagnostic assistance.

Up-to-date immunologic, morphological, genetic and biochemical laboratories ensure highly sensitive diagnostics and confirm clinical diagnoses.

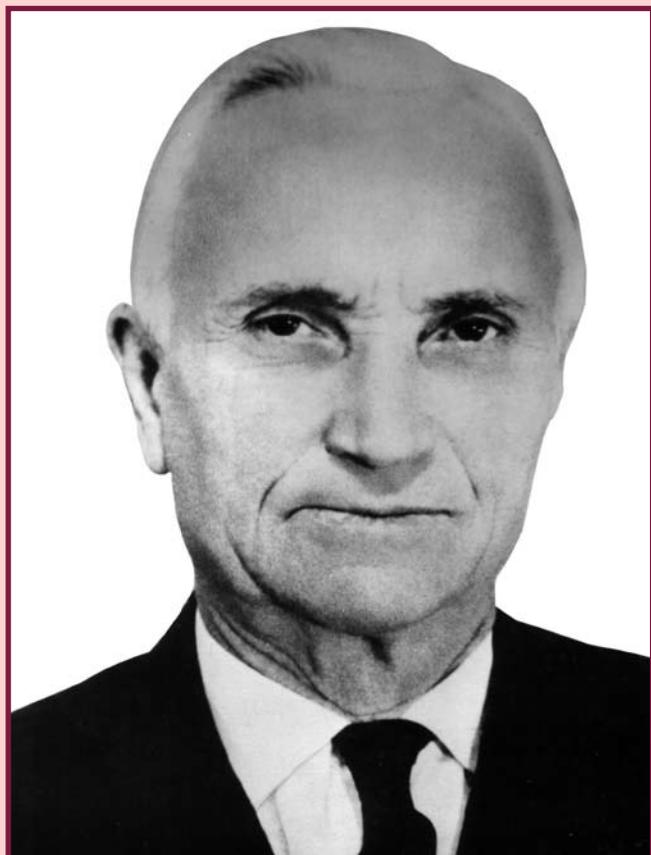
Authorized systems and the last new methods of therapy are applied and most effective and safe antirheumatic drugs are selected for the treatment of patients.

Extensive research work is conducted at the Institute. New high technology methods of diagnostics and therapy are introduced using advanced national and international experience.



Rendering highly technological assistance and improving life quality for our patients – is the task of priority importance for Russian rheumatologists

Director of State Institute of Rheumatology of RAMS,
President of Association of Rheumatologists of Russia
Academician of RAMS, E.L.Nasonov



***A.I. Nesterov, Academician of USSR AMS
Director of the Institute from 1958 to 1970***

State Institute of Rheumatology of RAMS is the successor of State Research Institute of Rheumatism of Ministry of Public health of Russia, founded in 1958 (beginning from 1962 – Institute of Rheumatism of AMS of USSR, then State Institute of Rheumatology of RAMS). Opening of the Institute of Rheumatism in 1958 took place due to the initiative and efforts of its founder, prominent national researcher and important figure in the field of public health, Academician of USSR AMS Anatoly Innokentievich NESTEROV.

In February, 1928 All-Union Committee on Rheumatism and Articular Diseases was organized which joined the International Anti-Rheumatic League. This date could be considered the day of founding of national scientific-practical rheumatology and State antirheumatic service.

Order of the Ministry of Health of the USSR №582 from December 1958 (A.I. Nesterov played the main role in its preparing) for the first time clearly formulated organization principles and standards of national rheumatology service development which appeared already in 1930-40 years. The main purpose for rheumatologists at that time was “decrease of rheumatic fever morbidity, preventing its relapses and decreasing the severity of consequences”.

Due to A.I. Nesterov’s efforts supported by numerous researchers and practical

physicians this aim to the sixties of the last century was mainly achieved. Clinical-diagnostic, pathogenetic, morphological and therapeutic aspects of rheumatic fever including the role of streptococcal infection in the development of the disease and its relapses as well as methods of their prophylaxis in adult patients were actively investigated under guidance of A.I. Nesterov (T.I. Bibikova, I.N. Mihailova, I.A. Bronzov, A.M. Borisova, N.N. Grizman, I.M. Lyampert, A.S. Labinskaya).

Planning the organization of the Institute assigned to lead the struggle against rheumatic fever A.I. Nesterov from the very beginning organized the structure with the possibilities of study of other rheumatic diseases as well. Clinic of the Institute was opened in 1958 and included 3 departments: rheumatic department headed by A.I. Nesterov, department of infectious non-specific polyarthritides (rheumatoid arthritis) under the guidance of his talented disciple prof. M.G. Astapenko and department of "bordering forms", which investigated the new for national medicine problem of diffuse diseases of connective tissues, or "collagenoses", headed by Academician of AMS E.M. Tareyev (from 1963 headed by V.A. Nasonova). Simultaneously with rheumatic fever the Institute investigated other rheumatic diseases, including the development of the diagnostic criteria and differential diagnostics, study of their course and the development of principles of differential therapy, assessment of outcomes and prognosis.

Criteria of activity as well as classification of the disease as a whole were developed for Systemic Lupus Erythematosus (SLE) by V.A. Nasonova (1965, 1972) and for systemic scleroderma (Scl) by N.G. Guseva (1975) At the beginning of the eighties national classification of Juvenile Rheumatoid Arthritis (A.V. Dolgoplova et al.) and Sjogren's disease (V.I. Vasiliev) were produced.

Developing this direction, important for practical rheumatologists, L.I. Benevolenskaya and M.M. Brzhezovsky in 1988 published diagnostic criteria for rheumatic fever with mathematic assessment for every sign, useful for clinical practice as well as for epidemiological studies. Later (1989) the group of researchers headed by E.R. Agababova elaborated and tested the national criteria for diagnostics of psoriatic arthritis, and in 2003 the preliminary criteria for reactive arthritides were presented.

It should be stressed that introduction of the term "activity" of rheumatic diseases and developing criteria of their stages was the priority of national rheumatologists. Basing on the developed working classifications and activity criteria, widely applied in clinical practice of rheumatologists till now, it became possible in all medical services of the country to use standard approach to formulation of the diagnosis, assessment of every patient and selection of proper schemes and methods of treatment.



***V.A.Nasonova, Academician of RAMS,
Director of the Institute from 1970 through 2001***

Intensity of research work on different problems of contemporary rheumatology especially increased after Prof V.Nasonova become the head of the Institute in 1970, soon she became Corresponding and later – full member of AMS of USSR.

Accumulated to that time clinical experience, longterm observation of numerous groups of pts, striving for creative analyzing of the obtained results enabled the personnel of the Institute to select the variants of the course of basic rheumatic diseases and to describe syndromes and diseases earlier unknown to national rheumatology. Among them – mixed connective tissue disease, systemic sclerosis (M.Ivanova, N.Guseva, O.Folomeeva), eosinophilic fasciitis, induced scleroderma and paraneoplastic rheumatic syndrome (N.Guseva). Variants of organic lesions in inflammatory rheumatic diseases, for example systemic (extraarticular) RA manifestations were studied and described (V.Nasonova, R.Balabanova).

Glandular and extra-glandular manifestations of primary (secondary) Sjogren's syndrome (V.Vasiliev, M.Simonova) and its complicated relationship with lympho-

proliferative process (V.Vasiliev et al.) were actively studied. Numerous variants of juvenile arthritides were revealed in the research of pediatric department of the Institute (A.Dolgopolova, L.Alexeyev, A.Shaikov and later N.Kuzmina, I.Nikishina, S.Salugina et al.).

M.Astapenko headed in 1971 Arthrologic All Union Center organized on the basis of the Institute of Rheumatism initiating deep research of osteoarthritis as predominating systemic and prevalent articular pathology in the population. This direction is being developed on the new level by other specialists of the Institute (E.Tzvetkova et al., then L.Alexeeva et al.), paying special attention to therapeutic problems which include not only anti-inflammatory and analgesic but also modern chondroprotective medication.

During the sixties the first in the country rheumatic surgical department began working (V.Pavlov) where articular surgery was done. Initiative for developing of operative treatment and rehabilitation of rheumatic patients was begun by A.Nesterov, then this direction was supported by the next directors – V.Nasonova and E.Nasonov. At present the trauma-orthopedic department of the Institute with the laboratory of rheuma-orthopedy with rehabilitation (S.Makarov et al.) treats during the year more than half thousand of pts. Here unique operations are performed including high technology methods of endoprosthetics not only in non-inflammatory conditions, but in cases of systemic inflammatory rheumatic diseases – RA, SLE, ankylosing spondyloarthritis et al.

Long term study of the role of microbic and other agents in the development of rheumatic diseases (reactive arthritides, Reiter's disease), development of methods for their treatment was done in the department, headed by E.Agababova (S.Sidelnikova, S.Shubin, M.Urumova et al.) with participation of the specialists – microbiologists and epidemiologists from related institutes, Lately the department paid special attention to the study of the new diagnostic (MRI) and therapeutic problems, including therapy by new medications (Infliximab et al.) for seronegative spondyloarthritis, mainly for ankylosing spondylitis (N.Bunchuk et al.)

Clinical, pathogenetic and diagnostic aspects of Lyme-borreliosis were also widely investigated in Russian population of pts. Its articular manifestation were thoroughly investigated for the first time. This work was conducted within the framework of Soviet-American cooperation on the initiative of V.Nasonova and this investigation was headed from Soviet side by L.Ananieva.

For the last decade the prevalence of co-morbid infections and methods of latest anti-infection chemotherapy and prevention of RD was studied in the group of B.Belov.

The Institute continues investigation of the role of viral infection in the development of inflammatory RD and applying anti-viral drugs in complex therapy (R.Balabanova et al.) which was began in the seventies by Z.Alekberova.

Undoubted achievement of the seventies and eighties was the study of age peculiarities (V.Nasonova, I.Ievleva et al.) and sexual dimorphism in RD (Z.Alekberova), detailed study on extensive own material, description and classification of renal insufficiency and CNS lesions in SLE (M.Ivanova et al.), vascular (generalized Raynaud's syndrome) and visceral manifestations of systemic sclerosis (N.Guseva), secondary amyloidosis in RA (Y.Sigidin, Yu.Muraviev). In the same period the studies on early diagnostics, clinical manifestations and therapy of rheumatoid arthritis were conducted for the first time together with Finish and German rheumatologists. The following monographs were published: "Rheumatoid arthritis" (edited by V.Nasonova and V.Laine), and "Rheumatoid arthritis: systemic disease" (edited by Prof. V.Otto, H.Häntzschel and V.Nasonova). Complex work in the beginning of the nineties under the guidance of V.Nasonova made the important contribution to the study of acute rheumatic fever features on the example of young men (recruits) unfavorable epidemiological situation

Institute of Rheumatology repeatedly initiated the beginning and development of the new perspective directions of medical service in this country including interdisciplinary problems. The example of such problem is antiphospholipid syndrome, opened for national rheumatologists by Z.Alekberova and E.Nasonov et al. and taken then by other specialists – neurologists, obstetricians-gynecologists, cardiologists et al. Similar problems, joining specialists from different fields with the leading role of rheumatologists were osteoporosis (L.Benevolenskaya), primary and secondary Sjogren's syndrome (V.Vasiliev), Bechet's disease (Z.Alekberova), low back pain syndrome (S.Erdezs) et al.

Fruitful research and practical activity of clinical departments would be impossible, if from the very beginning strong scientific-diagnostic service was not organized. Among its sections one should note first of all the laboratory of clinical immunology (V.Sachkov and for the last 40 years A.Speransky et al.), where numerous markers of autoimmune inflammation are studied.

Laboratory of Pathomorphology (N.Grizman, M.Rusakova, for the last 1.5 decades – S.Radenska-Lopovok), Laboratory of Functional Diagnostics (V.Sysoev), for the last 20 years – Laboratory of Instrumental and US-diagnostics of RD (E.Match et al.).

Extensive experience of diagnostics and differential diagnostics of articular and bone diseases and lesions accumulated by the X-ray department of the Institute (V.Zodiev, Yu.Khomiakov, V.Shanina, N.Mylov, then A.Smirnov et al.). At present we have in the X-ray department the group of densitometry and also the methods of MRI of joints, especially on early stages of the disease are being developed.

The study of pathogenetic mechanisms of the development and therapy of RD on animals is possible due to well equipped vivarium on the basis of which on the initiative of V.Nasonova the Laboratory of Biologic Models of RD (G.Pleskovskaya) was organized.

From the first days of working the Institute the methods of RD therapy were studied.

High scientific-practical importance for national rheumatology was attached to the development of principles of glucocorticoid therapy of inflammatory and autoimmune RD (V.Nasonova, Ya.Sigidin, M.Ivanova, N.Guseva et al.) including very high doses of metypred I,v, (pulse-therapy), and methods of extracorporal therapy for pts in crisis situations (M.Ivanova, S.Soloviev et al.). Introducing immunomodulating drugs into the schemes of therapy of rheumatoid arthritis pts, beginning with aminochinoline drugs (T.Bibikova, M.Ivanova et al.) and ending with cytotoxic ones – azatioprin, chlorobutin, cyclophosphan and others, including bolus introducing the latter (M.Ivanova, S.Soloviev, V.Vasiliev et al.) became equally important.

Significant attention was also paid to the studies of other disease modifying anti-rheumatic drugs: gold salts, sulfosalazine, metotrexate, later – leflunomide et al. (T.Trofimova, Ya.Sigidin, later – R.Balabanova, Yu.Oliunin et al.)

Organizing the Laboratory of Clinical Pharmacology (Ya.Sigidin) enabled us for the first time to conduct clinical studies corresponding to international requirements (double blind, randomized, placebo-controlled). In these investigations efficacy and tolerability of a number of non-steroid anti-inflammatory and other antirheumatic drugs were assessed.

Frequency and specter of possible unfavorable effects and complications, appearing during treatment of rheumatic pts and methods of their minimizing are evaluated in the Laboratory of Tolerability of Antirheumatic Drugs (Yu.Muraviev, A.Karateev et al.)

Fundamental problems of epidemiology and genetic of rheumatic diseases are actively studied in the department of similar title (L.Benevolenskaya), organized on the proposal of academician A.Nesterov. The personnel of this department during the seventies-eighties of the last century for the first time in our country organized extensive epidemiological study, including more than 50 thousands of residents of former USSR. At the result the data on the prevalence of rheumatic fever, RA, ankylosing spondyloarthritis, osteoarthritis and gout among the population were received.

The Laboratory of Medical Genetics within this department (V.Myakotkin et al.) revealed the important role of genetic factors, first of all, antigens of HLA system, which formed the sensitivity to rheumatic fever, RA, SLE, ankylosing spondyloarthritis and osteoarthritis. Mainly due to active position of L.Benevolenskaya, firmly supported by Academician V.Nasonova, Institute of Rheumatology initiated in Russian Federation the complex investigation of complicated problem of primary and secondary osteoporosis, including osteoporosis in pts with RD, this problem being interdisciplinary. On the basis of the department of epidemiology and genetics the Center of Osteoporosis Prevention of the Ministry of Health of Russian Federation was organized. The Institute as the leading organization in rheumatology from the very beginning performed the complicated function as organizing center of special care for the numerous RD pts on the state level. Undoubted great services of

A.Nesterov, M.Astapenko, A.Dolgopolova, B.Leites, A.Bolotina, E.Maxakova et al. and certainly V.Nasonova – Chief Rheumatologist of the Ministry of Health of RF were the development and introducing of scientifically substantiated principles of rheumatic service in USSR and then RF. Due to active position of Academician V.Nasonova the rheumatic service was not only preserved but even strengthened during the very complicated period of the 90th of the last century. Centers of Rheumatology, organized with the assistance of this Institute continue to conduct extensive research-practical work in other cities (S-Petersburg, Volgograd, Yaroslavl, Ecaterinburg, Orenburg, Tula, Voronezh, Kazan, Rostov-on Don, Kemerovo, Novosibirsk, Khabarovsk et al.).

Organized due to initiative of V.Nasonova the constant monitoring of rheumatic morbidity of our population (O.Folomeeva, Laboratory of Scientific-organizational Problem of Rheumatology) convincingly shows steady growth of medical-social importance of RD. It could be noted, that in 2007 the Ministry of Health and Social Development of Russia issued the order No 444 “On the measures of improving the rheumatologic medical assistance to the population of RF”, which strengthened the position of rheumatologists and basic structures of rheumatic service. Association of Rheumatologists of Russia (ARR) with its President, Director of the Institute of Rheumatology of RAMS, Academician E.Nasonov took an active part in the preparing this important document.



***E.L.NASONOV, Academician of RAMS,
Director of the Institute from 2001.***

E.L.Nasonov, Academician of RAMS, became the Director of the Institute and successor of its renowned traditions and this moment coincided with new revolutionary achievements and discoveries in international rheumatology. This fact was reflected in emerging new research directions and programs of investigations at the Institute.

Proofs of the role of inflammatory mechanisms in the development of atherosclerosis with participation of cytokines and other inflammatory mediators, playing the basic role in the pathogenesis of rheumatic diseases became the stimulus for organizing of deep study of cardiovascular disturbances, prevalence and mechanisms of the development of early atherosclerosis, in particular in RA and SLE. Thus, rheumatology and cardiology joined again but on principally new basis.

Under the guidance of E.Nasonov clinical investigations of principally new highly technologic gene-engineering biological agents began, first of all antagonists of the factor of tumor necrosis α and anti-B cell agents – Rituximab, introduced into rheumatology at the beginning of the new century.

He established the Center of Therapy with gene-engineering biological agents

(G.Lukina, Ya.Sigidin) with several branches in RF regions, the register of pts, having biological agents was organized. Radical effect of biological agents, used at early stages of RA, in psoriatic arthritis and ankylosing spondylitis enables to raise the task which could not be achieved earlier: to obtain stable and full remission or even recovery in these severe and progressing RD.

On the initiative and with direct participation of Director of the Institute the branch program "RADICAL" was developed, which was aimed at the study of clinical-diagnostic peculiarities, outcomes and principles of active RA therapy on very early stages in the "window of opportunity", when the effect of therapy is maximal. The program was supported by RAMS Presidium and is being developed at the Institute and other rheumatic centers of Russia (D.Karateev et al.) Early stages of other rheumatic diseases (juvenile arthritides, ankylosing spondylitis, SLE et al.) are also being studied.

In 2004 the Laboratory of Clinical Investigations and International Relations was organized, which conducts numerous clinical trials of new antirheumatic drugs within the framework of major international projects (M.Stanislav, L.Denisov et al.). The Laboratory widely applies innovation technologies, aimed at improving early laboratory immune diagnostics of RA and SLE, study of molecular-genetic mechanisms of inflammation, immunologic markers are applied for the assessment of the therapy efficacy by gene-engineering biological agents and for predicting the course of rheumatic diseases, search of laboratory biomarkers of cardiovascular risk for these diseases (E.Alexandrova et al.).

Besides, the Institute conducted the cycle of new investigations on gout, considered within the framework of general metabolic syndrome (V.Nasonova, V.Barskova et al.) and this problem is being developed further.

The laboratories and departments of the Institute conduct fundamental studies of the role of cells-precursors in the pathology of angiogenesis in systemic sclerosis (T.Nevskaya, L.Ananieva), clinical importance of antibodies to nucleosomes and of heat shock proteins in SLE, qualitative and quantitative composition of extracellular DNA and its role in the development of autoimmune and immune inflammatory reactions, methods and indication for centrifugal granulocytapheresis are developed within framework of intensive RD therapy, and anti-B-cell therapy (Rituximab) of SLE and primary Sjogren's syndrome pts. (S.Soloviev, V.Vasiliev) and others.

At the beginning of XXI century the Department of Medical-Social problems was organized (S.Erdesz et al.) as a reaction to the International Decade of Bone and Joints 2000-2010 organized under the auspices of WHO and designed to increase attention to social RD aspects. The department developed the program of multicenter epidemiological study "Social importance and economic effects of RD". At present one more multicenter program "Low back pains and spondyloarthritides" is approved and is being developed.

For the first time in the country multicentrer study of RA pts quality of life "Mirage"

was performed using international validated specific and generic questionnaires (V.Amirjanova). Studies on basic socially important for our community rheumatic problem are continued.

Under the guidance of Director of the Institute, Academician E.Nasonov in 2007 the Federal program "Rheumatic diseases 2008-2012" was developed and approved by RAMS Presidium which now is being perused at the Ministry of Health and Social Development of RF.

E.Nasonov pays great attention to the problems of elaboration of up-to-date standards of diagnostics and therapy of RD pts, presented as the series of clinical recommendations, issued under ARR auspices and widely disseminated among rheumatologists and other specialists. These recommendations became handbook for thousands of physicians on all territory of Russia and enable them to apply contemporary scientifically substantiated diagnostic and therapeutic methods in numerous groups of rheumatic pts in regions.

The Institute possesses reliable scientific potential: among 135 research workers – 2 are Academicians of RAMS, 50 – Professors and Doctors of Medicine, 67 – Candidates of medical or biological sciences. Leading research workers are included into the special dissertation council on rheumatology with E.Nasonov as the Chairman, and also form the editing board of the journal "Scientific-practical rheumatology", disseminated and popular among RF rheumatologists. The Institute has Internet-site and develops innovative technologists in TV-medicine (Yu.Sundukov et al.), allowing wide scientific-educational and clinical-diagnostic assistance to numerous far away regions of Russia.

The Institute remains the head organization for all rheumatologists of Russia. It has high authority among scientists from other countries. The Institute is an active member of EULAR and takes an active part in numerous international projects. High international evaluation of the Institute activity was reflected in the fact that Academician V.Nasonova, former Director was elected Vice-President in 1975-77, President-elect in 1977-79 and EULAR President in 1979-81.

Present Director, Academician E.Nasonov and many leading workers of the Institute are well-known and respected in other countries.

Institute of Rheumatology of RAMS meets its 50th anniversary, enriched by invaluable experience of the past, intensively develops urgent problems of contemporary rheumatology and looks ahead with confidence.



Chief Physician
T.M. Novosiolova, M.D.



Institute clinic was organized as the basis for conducting research in rheumatology and assistance to practical health. At the beginning 90 rheumatic in-pts could be accommodated in the main building of the Institute on Petrovca str. 25, and pediatric department in the 67th Municipal hospital. Then within the structure of the Institute Arthrologic Center was organized on the basis of 13th Municipal hospital.

Beginning from 1988 new clinical building was opened on Kashirskoye shosse, 34A, which accommodated 300 beds, which made it possible to organize 5 rheumatologic departments, pediatric department, trauma-orthopedic and outpatient department for adults and children. Contemporary laboratories – clinical-diagnostic, immunological, pathomorphological, functional diagnostics, X-ray, physical therapy, pharmacological department, canteen were organized.

For the last years in line with objectives of rheumatology of XXI century the clinic boasted new structural sections: laboratory of clinical investigations, department of anesthesiology and resuscitation with the group of efferent methods of treatment. To improve countermeasures on intrahospital infection department of disinfection and central sterilization was reconstructed in line with contemporary requirements.

Radiological department increased the possibilities of examination of rheumatic pts after acquiring new instruments: digital radiological apparatus, MRI, CT, densitometry.

New diagnostic appliances allowed clinic department to participate in national projects on health in the field of rheumatology,

to treat pts with high technology (high cost) methods: polycomponent therapy with chemotherapeutic, gene-engineering biological agents, efferent methods of therapy and methods of orthopedic correction; in traumatology-

orthopedics: endoprosthetics of large and small joints.

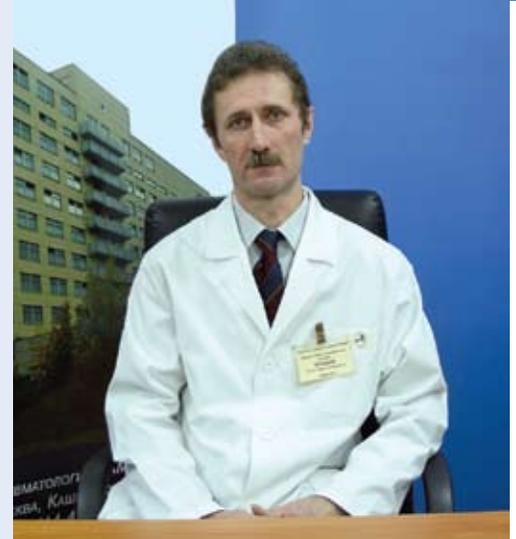
In outpatient department special conditions were developed for long-term treatment with biological agents of out-pts in the center of anti-cytokine therapy.

Beginning from 2001 the clinic collaborates with Medical informative-analytical Center of RAMS in the program of personal registration of medical services, which helps in planning, controlling and monitoring all activities including high technology medical assistance, research studies, programs of obligatory and voluntary insurance and paid medical assistance.

CENTER OF THERAPY BY GENE-ENGINEERING BIOLOGICAL AGENTS

- Developing therapy programs with gene-engineering biological agents for pts with RA and other inflammatory rheumatic diseases
- Coordination of high technology assistance to RD pts in Russia
- Developing Russian Register of RA and SLE pts, treated by gene-engineering biological agents
- Upgrading physicians-rheumatologists in the field of biological therapy
- Biological therapy for RD pts in Moscow and Moscow region

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**Head of out-patient
department
O.V.Rubtzov, M.D.**



G.V.Lukina, M.D.



Head of laboratory
L.I. Kashnikova, M.D.



Pharmacy



Clinical-diagnostic laboratory

Founded in 1993

Head: L.N.Kashnikova, Cand.biol.sci.

Contemporary automatic analyzers are used, laboratory fulfills numerous analyses:

Biochemical – protein, carbon, lipid, mineral metabolism;

Enzymes, electrolytes, specific proteins et al.

Coagulologic – APTT; prothrombin, fibrinogen, D-Dimer, plasminogen; antithrombin, search of lupus anticoagulant.

Hematologic – automatic determining of 18 basic blood parameters; the count of leucocytes, ESR count by T.Panchenkov and A.Westergren.

Results of laboratory studies are widely applied not only for diagnosing, observing the course of the disease, efficacy of therapy but also in scientific developments for screening of drugs, control and testing of new therapeutic methods for rheumatic diseases.

Personnel of the clinic



Radiological department

Head: A.V.Smirnov, M.D.

Basic directions:

1. Improvement of methods of radiological diagnostics of systemic inflammatory (RA, SLE, SSd) and non-inflammatory (OA) rheumatic diseases.

2. Introducing new methods of ray-diagnostics of bone and joints system diseases (radiological bone densitometry, MR tomography of joints).

3. Study of bone mineral density and secondary osteoporosis in RD.

At the result of studies it was demonstrated that the secondary osteoporosis and its complications such as bone breaking and vertebral deformations in systemic inflammatory diseases are more frequent than in the population.

MRT is the method of early (before radiological) diagnostics of articular alterations which allows to indicate adequate anti-inflammatory therapy on earlier stages of disease development.

Personnel of X-ray department



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**Head of department
A.V.Smirnov, M.D.**



**Group of investigation
of gastroenterological
problems in RD
A.E.Karateev, M.D.**

CLINICAL DEPARTMENT



**Laboratory of functional
and US diagnostics**

Founded 29 September, 1958

Head: Professor E.S.Match, M.D.

Basic directions: introducing and improving contemporary and adequate methods of assessment of functional condition of cardio-vascular and locomotor systems to reveal early signs of their lesions with the view to optimize approaches to the therapy of RD manifestations.

Methods of study:

- traditional ECG in 12 dimensions, 24-hours monitoring of ECG and AP using load tests (treadmill-test), analysis of variability of cardiac rhythm for a long time,
- computer sphygmography and digital pletizomography with objective assessment of the rigidity of magisterial arteries,
- laser-Doppler fluometry to assess cutaneous microcirculation and its regulation,
- assessment of the function of external respiration and revealing the fist indices of pulmonary hypertension,
- electromyography.

Ultrasound methods:

- complex US study in the regimen of one-two dimensions with color Doppler charting of flows
- duplex scanning brachycephalic trunk vessels for revealing initial forms of atherosclerosis of carotic and lower extremities arteries, duplex scanning with color charting of venous system condition,
- determining endothelial function.

US study of joints on all levels to reveal early manifestations of inflammation and destruction with energetic Doppler – assessment of synovitis degree, determination of the locus of lesion with the view to select the therapeutic method



**Head of laboratory
Professor E.S.Match, M.D.**



Basic achievements:

Advantages of complex study of cardio-vascular system to reveal early manifestations of atherosclerotic lesion in RD, diagnostics of thrombogene endocardites were demonstrated. The disturbance of diastolic function of the left ventricle practically in all RD was found.

Duplex study with color charting of renal vessels was introduced.

Advantages of US study of joints were demonstrated for diagnostics of subclinical inflammation.

Department of physical therapy and rehabilitation

Head: V.V.Tahtai

Basic directions:

1. Physical therapy; cryotherapy, electrotherapy, laser therapy, ultrasound.
2. Physical exercises – group and individual exercises, development of individual rehabilitation plans.
3. Assessment of the function of motion, registration of electric muscle potential.
4. Assessment of orthopedic statute by program complex "Stereophotometry and plantoscopy".

Development of psychotherapeutic assistance as an important aspect of social adaptation of pts with motor disturbances. Opening of the laboratory of biomechanics to assess motor disturbances with subsequent correction.

STATE INSTITUTE OF RHEUMATOLOGY OF RUSSIAN ACADEMY OF MEDICAL SCIENCES



Head of department V.V. Takhtay





Director:

E.L.Nasonov,
Professor, Academician of RAMS



Deputy Director on Research:

S.F.Erdesz, Professor, M.D.



**Deputy Director
on Executive Problems:**

A.D.Vasin



Scientific Secretary:

V.N.Amirdzhanova, M.D.



Chief Physician:

T.M.Novosiolova, M.D.



Chief Nurse:

D.M.Valuieva



Chief Accountant:

Z.L.Plotnikova



Head of Personnel Department:

N.S.Abramova



Legal Adviser:

T.A.Filimonov

SCIENTIFIC PART

Scientific Council of the Institute (Chairman E.Nasonov, Academician of RAMS) is the highest administrative organ and basic problems of scientific research, directions of work are discussed, plans and reports of work from laboratories are approved, topics of dissertations of aspirants, doctorants and competitors are planned, problems of initial expertise of candidate and doctor dissertations are resolved during its sessions. Scientific Secretary of Institute of Rheumatology of Russian Academy of Medical Sciences – Vera Amirdzjanova, M.D.

The peculiarity of planned topics is the combination of fundamentality of researches with clear practical aims, orientated at solving the most urgent problems of practical health service and medical science. Last years the number of studies based on collaboration with the leading scientific RAMS, Ministry of Health of RF organizations and international research centers constantly increases.

Special attention is paid to the discussion of problems of priority studies: study of basic factors of etiology and pathogenesis of RD, including inflammatory, metabolic and degenerative articular and spinal diseases, basic directions of researches – programs of multicenter studies RADICAL (“Early rheumatoid arthritis: clinical-diagnostic peculiarities, outcomes, principles of active therapy”), “Cardio-vascular importance and economic effects of RD”. Great attention is paid to safety of antirheumatic therapy.

For the last years great attention is paid on the sessions of Scientific Council to the introducing innovative technologies into rheumatologic practice, including the therapy by new generation of gene-engineering biological agents, organization of centers of anticytokine therapy, high technology methods of surgery (articular endoprosthetics)

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**Vice Director
in Scientific work
Professor S.F. Erdesz, M.D.**





Scientific Secretary
V.N. Amirdzhanova, M.D



of RD pts. These problems are actively discussed on scientific-practical conferences, symposia, congresses and meetings of rheumatologists.

For the last ten years 5 congresses of rheumatologists, International Congress on Osteoporosis, 5 Schools for young rheumatologists, more than 20 topical scientific-practical conferences and symposia were organized.

Institute of Rheumatology has clinical academic internship, post-graduate studentship and doctor thesis course on specialty "Rheumatology", and from 2007 – internship and post-graduate studentship on specialty "Traumatology and Orthopedics". Every year 18-20 interns and about 20 post-graduate students have clinical and scientific practice.

For the last 10 years more than 1000 physicians from different RF regions were up-graded at the Institute, including certification cycles. At present new forms of training are being developed including TV medicine and on-line on the site of the Institute in the internet.

Beginning from 2000 the journal "Scientific-practical rheumatology" is issued (Chief Editor – V.Nasonova, Academician of RAMS), which is the successor of the previous journal "Problems of Rheumatology" issued for more than 40 years. For the last 10 years Clinical Guidelines on therapy of basic rheumatic diseases, National handbook on rheumatology, more than 30 monographs and manuals were issued. About 1000 scientific articles were published including those in the best international journals.

DEPARTMENT OF VASCULAR PATHOLOGY OF RHEUMATIC DISEASES

Head: Professor E.Nasonov,
Academician of RAMS

Laboratory of systemic rheumatic diseases

Head: Professor Z.Alekberova, M.D.

Laboratory of microcirculation and inflammation

Head: Professor L.Ananieva, M.D.

Laboratory of metabolic disturbances

Head: V.Barskova, M.D.

Laboratory of systemic rheumatic diseases

Founded 29.04.1981 at the result of re-organization of sections of the clinical Institute department. Its first name was "Rheumatic department of immunopathology".

Basic directions of studies:

- Study of the role of viruses in SLE etiology
- Sex and age problems in RD
- Study of Lyme disease in Russia

From 1986 antiphospholipid syndrome (APS) is the main direction of the study – the problem, retaining its importance now. These studies were awarded Silver Medal on Exhibition of National Economic Achievements.

Beginning from 2000 the registration of database on concomitant risk factors of thromboses in APS pts was organized together with specialists of Laboratory of Human Genome from the Institute of bioorganic chemistry (Head – Professor L.Patrushev), namely, genetic thrombophilia in APS pts.

Beginning from 2004 the program "Cardiovascular disturbances and atherosclerosis in rheumatic diseases" was approved, this topic being headed

STATE INSTITUTE OF RHEUMATOLOGY OF RUSSIAN ACADEMY OF MEDICAL SCIENCES



**Head of department
Professor E.L.Nasonov,
Academician of RAMS**



**Head of laboratory
Professor Z.S. Alekberova,
M.D.**



**Professor
T.M. Reshetnyak, M.D.**

by Academician E. Nasonov, Director of the Institute and Professor Z. Alekberova.

The program "Cardiovascular disturbances and atherosclerosis in rheumatic diseases" (Responsible researcher T. Popkova) is developed along the following directions:

- Screening analysis with determining prevalence of classic factors of cardiovascular risk (according to preliminary data in SLE and RA pts it reaches 98%);
- Connection of autoimmune inflammation and its markers (hfCRP, FNO, Il-18, Il-6, CD40L) with atherosclerotic vascular alterations in SLE and RA
- Assessment of cardiovascular effects of the drugs used for treatment of SLE and APS pts.

The problem of atherosclerosis in RD is studied from the positions of SLE with APS subtypes, relation to osteoporosis in RA. Preliminary data testify to the common pathogenetic mechanisms for atherosclerosis, osteoporosis and chronic inflammation.

A lot of material on clinical aspects of Bechet's disease was accumulated in the laboratory of systemic rheumatic diseases.

Results of long-term follow up were reflected in the issued in Russia for the first time monographies "Bechet's disease" (Z. Alekberova) and "Antiphospholipid syndrome" (E. Nasonov), where clinical-diagnostic aspects, therapeutic approaches and problems of etiology and pathogenesis of above diseases are considered.

For the first time in history of State Institute of Rheumatology of RAMS the problem of psychological peculiarities, prevalence and specter of psychic disturbances in SLE and RA pts was studied at the Laboratory of systemic rheumatic diseases under the guidance of Academician E. Nasonov in cooperation with Moscow Research Institute of Psychiatry of Ministry of Health of RF beginning from 2006 (planned for 2006-2011).

Laboratory of microcirculation and inflammation

Laboratory was organized in 1981, headed from 1981 to 2004 by Professor N.Guseva. From 2005 it was headed by Professor L.Ananieva.

Professor N.Guseva was working at the Institute of Rheumatology from the moment of its founding. She made a valuable contribution to the development of systemic sclerosis and scleroderma group of diseases and created an original scientific school, actively investigating the disturbances of microcirculation, immunopathology and mechanisms of fibrous formations. At present Professor N.Guseva continues fruitful research as leading scientific worker of the Institute, the member of several scientific councils and Chairman of rheumatologic section of the Association of Therapists. N.Guseva is awarded by the medal Le Touque (France) and has "Honours in Public Health Service", has highest therapeutic category and certification in rheumatology.

Professor L.Ananieva works at the Institute of Rheumatology from 1973. Research work was connected with the study of SLE, then with the role of infection in rheumatic diseases. L.Ananieva is the pioneer in the field of study in Russia of tick borreliosis (Lyme Disease), took an active part in the development and introduction of methods of borreliosis diagnosis. At present she actively studies early stages of systemic sclerosis and new therapeutic approaches, including international cooperation.

Basic directions of research of the laboratory – the study of genesis of vascular pathology and microcirculation disturbances, peculiarities of inflammation and fibrous formations on the models of scleroderma group of diseases, in particular:

- Study of pathophysiologic base of Raynaud's syndrome and genesis of scleroderma angiopathy.

STATE INSTITUTE OF RHEUMATOLOGY OF RUSSIAN ACADEMY OF MEDICAL SCIENCES



**Head of laboratory
Professor L.P. Ananieva, M.D**





**Professor
N.G. Guseva, M.D.**



Stable hemorheological disturbances and dysfunction and lesions of endothelial cells were found (R.Alekperov). Association of serologic markers of endothelial dysfunction and inflammation confirmed the interrelation of those basic pathophysiological processes in sclerodermatic angiopathy. Stages and phases of activity of sclerodermatic angiopathy were isolated. Method of wide-field capillaroscopy, recommended for early and differential diagnosis of systemic rheumatic diseases and Raynaud's syndrome was introduced.

- Study of interrelation of immune-inflammatory fibroplastic alterations in tissues, parameters of microvascular lesion and T-cell activation at an early stage of systemic scleroderma as compared with early Raynaud's syndrome (T.Nevskaya). Interrelation of immune inflammatory and fibroplastic alterations in tissues is proved. The initial differentiation into certain clinical form (diffuse or limited) and good prospects of contemporary therapy at an early stage of the disease are shown.

- Study of clinical heterogeneity of systemic scleroderma. Basing at the unique experience of study and therapy of more than 2000 pts with systemic scleroderma and related diseases, classification of systemic sclerosis and sclerodermatic group of diseases was developed and introduced. Isolation of juvenile scleroderma as a subtype of systemic sclerosis was substantiated as well as overlap forms of systemic sclerosis with RA, MD/PM, SLE. Basic variants of sclerodermatic nephropathy were selected and differential therapy with vascular agents in acute sclerodermatic renal crisis was developed. For the first time systemic sclerosis was studied in males. Its peculiarities in elderly were revealed (with debut after 50 y/o).

- Complex study of general, peripheral and visceral alterations served as scientific substantiation for the development and introducing into health

service practice differential pathogenetically substantiated programs of therapy of systemic sclerosis and other diseases belonging to scleroderma group was performed.

- Present stage of study is focused on the study of mechanisms of the disturbed angiogenesis and approaches to the correction of disturbances, as well as early diagnostics of such complications as pulmonary hypertension (A.Volkov) and the lesion of pulmonary interstium, which is important from the position of contemporary treatment and development of innovative therapy.

- The laboratory takes part in international cooperation within the frameworks of EULAR/EU-STAR, participating in a number of research topics on the clinic and diagnostics, in filling European database on systemic sclerosis.

Laboratory of metabolic disturbances

Head: V.Barskova, M.D.

Basic directions of research:

- Microcrystalline arthropathies
- Metabolic syndrome and cardiovascular disturbances in the gout and other rheumatic diseases.

The most important results of studies in the last years:

- Complex study of metabolic syndrome and insulin resistance in the gout pts demonstrated their effect on the development and course of the disease. For the first time the data were obtained on the effect of insulin resistance on clinical manifestations of gout. The interrelation between insulin resistance, hyperuricemia and severity of articular syndrome in gout as well as a number of metabolic disturbances was revealed.

- The efficacy of insulin sensitizers in gout pts in correction of metabolic disturbances and decreasing of insulin resistance as well as the decrease of the level of uric acid and frequency and

STATE INSTITUTE OF RHEUMATOLOGY OF RUSSIAN ACADEMY OF MEDICAL SCIENCES



**Head of laboratory
B.G.Barskova, M.D.**





**Chief Scientific Worker of
State IR RAMS
Professor V.A. Nasonova,
Academician of RAMS**

degree of arthritides was demonstrated.

- The studies on the development of optimal methods for treatment of gouty arthritis (comparing different NSAIDs, glucocorticoids), and study of metabolic safety of the drugs were fulfilled.

- The system of assessment of the gout course based on isolating prevailing clinical complexes (arthritis variants, tophus forms) was developed. This grading was aimed at the development of common approaches to diagnosing by practical physicians, united unified criteria in determining the disease stage and for the development of indications to differentiated gout therapy. Index of gout severity was developed, including the cluster of basic clinical manifestations, which allows to objectively assess the dynamic changes in the long term observation.

***Meeting of editorial board of the journal
"Scientific-practical rheumatology"***



DEPARTMENT OF MEDICAL-SOCIAL INVESTIGATIONS

Head: Professor S.F.Erdesz, M.D.

Laboratory of scientific-organizational problems in rheumatology

Head: O.M.Folomeeva, Cand.Med.Sci.

Laboratory of life quality study

Head: Professor S.F.Erdesz, M.D.

Department was organized in 2000 basing on Laboratory of scientific planning. In 2003 it included the group on organizing conferences. Basic aims of the department:

- Development of rheumatological service in Russia
- Study of social importance of rheumatic diseases in the country
- Study of life quality of RD pts and pharmacoeconomic studies of rheumatic diseases

Department consists of two laboratories:

- Laboratory of scientific-organizational problems in rheumatology
- Laboratory of life quality study

Laboratory of scientific-organizational problems in rheumatology

In 1958 the Organizational-methodic department was organized at the Institute of Rheumatism of RSFSR. In 1985 this department was re-organized into Laboratory of scientific anti-RD planning, and from 2000 – into Laboratory of scientific-organizational problems in rheumatology.

STATE INSTITUTE OF RHEUMATOLOGY OF RUSSIAN ACADEMY OF MEDICAL SCIENCES



**Head of department
Professor S.F.Erdesz, M.D.**





Head of laboratory
O.M.Folomeieva, M.D.



At present basic directions of the laboratory activities are:

- Monitoring morbidity indices for RD among RF population according official statistic data
- Composing analytical reviews and study of the dynamics of prevalence and primary RD morbidity among adult and children population
- Monitoring the condition of rheumatologic service in Russia and its regions, development of documents, aimed at its improvement in present situation
- Development, organization and implementation of big scale, multicentral epidemiological studies for assessment of actual burden of RD on population

Laboratory of life quality study

The laboratory was founded in 2000 simultaneously with the Department of medical-social investigations. Basic directions of its activities are:

- Study of life quality of RD pts
- Validation of Russian versions of new questionnaires for life quality study and the analysis of possibilities of their application in scientific and practical rheumatology
- Pharmaco-economical studies

**DEPARTMENT OF EPIDEMIOLOGY
AND GENETICS OF RHEUMATIC
DISEASES WITH THE CENTER OF
OSTEOPOROSIS PREVENTION
OF RF MINISTRY OF HEALTH**

Head: Professor L.I.Benevolenskaya, M.D.

Laboratory of epidemiology

Head: Professor L.I.Alexeeva, M.D.

***Laboratory of osteoporosis
prevention***

Head: Professor L.I.Benevolenskaya, M.D.

Laboratory of RD genetics

The laboratory of epidemiology was founded on 1 April, 1969. The department of RD epidemiology and genetics was organized on the base of the laboratory in 1989. The department of epidemiology and genetics with the center of osteoporosis prevention of RF Ministry of Health was organized in 1997. basic directions of researches:

Laboratory of epidemiology:

- Study of epidemiological, clinical and pathogenetic aspects of osteoarthritis.
- Study of the role of subchondral bone in osteoarthritis and interrelation of the disease with osteoporosis.

Laboratory of osteoporosis prevention:

- Epidemiology of osteoporosis and fractures
- Social aspects of osteoporosis: study of life quality and costs of treatment of osteoporotic fractures
- Development of the system of prevention and treatment of post-menopausal osteoporosis
- Study of genetic markers of bone re-modelling in osteoporosis
- Study of correlations and potential of the combined therapy of osteoporosis and atherosclerosis

**STATE INSTITUTE OF
RHEUMATOLOGY OF
RUSSIAN ACADEMY
OF MEDICAL
SCIENCES**



**Head of department
Professor
L.I.Benevolenskaya, M.D.**





Head of laboratory
L.I. Alexeeva, M.D.



(the part of the topic “Cardiovascular disturbances and atherosclerosis in rheumatic diseases)

Laboratory of RD genetics

- Identification of genes of susceptibility and risk factors for the diagnosis and prognosis of RA, osteoporosis and osteoarthritis development

The most important results were obtained lately.

Laboratory of epidemiology

- For the first time the prevalence of different forms of manifested osteoarthritis (knee, hip, wrists joints) was studied in 5 ethnically different populations, risk factors of these forms were isolated and their contribution to the prevalence of the disease was assessed.

- It was found that osteoarthritis of knee and wrists joints was associated with higher values of the bone mass in axial skeleton. The association of mineral bone density in axial skeleton and in subchondral bone with the degree and severity of gonarthrosis was demonstrated.

- Participation of genes of vitamin D receptors, of collagens of the type I and II in determination of mineral bone density in OA pts was found as well as correlation of genotypes of these genes with dimensions of osteophytes during gonarthrosis. Risk factor of the disease was revealed – it was double heterozygotes of collagen I and II genes.

Laboratory of osteoporosis prevention

- For the first time the prevalence of osteoporosis was studied using the analysis of mineral bone density in the urban population sample, risk factors of the disease were isolated, prevalence of hip and forearm fractures was found, outcomes of hip fractures were studied which testify to high social importance of the disease

- For the first time prospective observation of the cohort was done for 9 years, prevalence of osteoporosis cases and osteoporotic fractures of peripheral bones was found

- For the first time the prevalence of osteoporotic

spinal fractures was studied by X-ray morphometric method, which allowed to unify the obtained data and compare with the prevalence of same fractures in European countries

- Common and distinguishing features of postmenopausal and senile osteoporosis were found, including biochemical markers of bone exchange
- For the first time characteristics of adolescents' bone tissue was presented according the assessment of mineralization indices
- Methods of primary and secondary osteoporosis prevention were developed, clinical expediency and substantiation of their use was demonstrated.

Laboratory of RD genetics

- Frequency characteristics of alleles of gene HLA-DRB1 was obtained in pts with early RA and alleles of high risk RA development were found
- For the first time the net approach was used for identification of genes predisposed to osteoporosis and osteoarthritis.
- Assessment of importance of polymorphism of genes LRP5, BMP4, TGF β 1, Colo1A1, Col1A2, Col2A1 in forming sensitivity to postmenopausal osteoporosis and osteoarthritis. Association of some polymorphism of the studied genes with mineral bone density, risk of fractures, risk genotypes were revealed.
- For the first time for all studied gene polymorphisms frequency and allele characteristics usual for Moscow region population were obtained.



STATE INSTITUTE OF RHEUMATOLOGY OF RUSSIAN ACADEMY OF MEDICAL SCIENCES



Head of laboratory
Professor V.A. Miakotkin,
M.D.



G.N. Pleskovskaya, Ph.D.



DEPARTMENT OF THE STUDY OF MECHANISMS AND CORRECTION OF AUTOIMMUNITY

Head: Professor R.M.Balabanova M.D.

Laboratory of intensive therapy methods

Head: Professor S.K.Soloviev, M.D.

Laboratory of the study of mechanisms and correction of autoimmunity

Head: B.S.Belov, M.D.

Department was founded in 1989.

Basic directions of the studies: improvement of methods of RA, SLE, Sjogren's syndrome, dermatomyositis treatment using different schemes of cytostatic and corticosteroid therapy.

Methods of rational use of antimicrobial agents in the complex therapy of rheumatic diseases.

Diagnostics and therapy of lymph proliferating diseases in rheumatic conditions.

Study of the role of co-morbid infections on the course and outcome of rheumatic diseases.

At the result of the studies it was demonstrated, that early inclusion of cytostatic immunosuppressors makes it possible to decrease the activity of RA, SLE and improve the prognosis of the disease.

Program synchronic intensive therapy by high metotrexate and metypred doses is most effective in the therapy of RS with severe course.

Active introducing of biological agents in the treatment of Sjogren's syndrome, RA, SLE makes it possible to arrest quickly main disease manifestations and begin remission.

Contemporary diagnostics and pathogenetic therapy of co-morbid infections increase the possibility of applying immunosuppressive therapy.



**Head of department
Professor R.M.Balabanova,
M.D.**



Laboratory of intensive therapy methods

Laboratory was founded in 2000.

Basic direction of research:

- Development of methods and assessment of the efficacy of intensive pathogenic therapy of autoimmune rheumatic diseases
- Synchronic program intensive therapy of SLE, Sjogren's disease, RA, cryoglobulinemia vasculites with high degree of activity and unfavorable prognosis.
- Study of indications, efficacy and mechanisms of action of anti-B-cell therapy in autoimmune rheumatic diseases (SLE, Sjogren's disease, cryoglobulinemia vasculites)
- Early diagnostics of lymph proliferation in Sjogren's disease.
- Diagnostics, differential diagnostics and therapy of inflammatory myopathies
- Development of indications and assessment of the efficacy of granulocytopheresis in pts with severe course of RA
- Basic principles of synchronic intensive therapy were developed (combination of plasmapheresis, pulse-therapy by methylprednisolone, cyclophosphan and immunoglobulin i.v.) in pts with progressing course of SLE, Sjogren's disease and RA. Methods of early diagnostics of lymphomas by the data of parotid gland biopsy and differential diagnostics of Sjogren's disease with multifocal sclerosis and sarcoidosis. Method of electromyographic study of nervous- muscular system in pts with inflammatory myopathies was mastered. For the first time in RF own experience was obtained on the use of anti-B-cell therapy in pts with SLE and Sjogren's disease, All-Russian register on Rituximab application in SLE pts was opened. On the results of the study Methodical recommendations, journal articles were pub-

STATE INSTITUTE OF RHEUMATOLOGY OF RUSSIAN ACADEMY OF MEDICAL SCIENCES



**Head of laboratory
Professor S.K.Soloviev, M.D.**



**Head of laboratory
B.S.Belov, M.D**



lished, 2 doctorate and 4 candidate theses were maintained, the presentation for European Rheumatological Congress was prepared.

Laboratory of spondyloarthritides

It was founded in 1989 by Professor E.R.Agababova, Honoured Scientist, M.D. and was a successor of the Laboratory of inflammatory articular diseases, within Arthrologic department of the Institute of Rheumatism.

Main directions of the research were and are different aspects of the clinic, diagnostics and therapy of ankylosing spondylitis, reactive arthritides and psoriatic arthritis.

For the last years the laboratory studies:

- The importance of tomographic methods (MRI, computed radiological tomography) in diagnostics of different manifestations of spondyloarthritides: sacroiliitis, spondylitis, peripheral arthritis.

- The importance of different methods of therapy of pts with ankylosing spondylitis

- The role and importance of hemorheologic disturbances in inflammation in psoriatic arthritis

- Evolution of the acute urogenous reactive arthritis and the importance of persistence of Chlamydia trachomatis in articular tissues and urogenital tract.

The most important results of the studies and achievements for the last years:

- MRT method for sacroiliac joints and spine in pts with ankylosing spondylitis was developed. The possibilities of this method were determined for diagnostics of inflammatory and structural changes.



N.V.Bunchuk, M.D.



- Peculiarities of hip joints lesions were described for pts with ankylosing spondylitis.

- The study of long-term using of Infliximab was done in pts with ankylosing spondylitis and the efficacy and tolerability of this drug was assessed.

- Pulse-therapy by glucocorticoids was assessed in pts with high ankylosing spondylitis activity and the place of this method in the therapy was determined.

- The project of diagnostic criteria of reactive arthritides was developed.

- Possibility of frequent isolation of Chlamydia trachomatis from synovia of the inflamed joints was demonstrated in pts with chronic reactive arthritis and other inflammatory articular diseases in case of persistence of this microorganism in the gates of the infection.

- Classification of hemorheological disturbances was developed for clinical practice. It was found that erythrocytes aggregation disturbances in PA pts correlate with the activity and term of the disease, and are more pronounced in osteolysis and ischemic bone necrosis. In osteolytic form of psoriatic arthritis the changes of microchannel vessels were found, which were characteristic for neoangiogenesis combined with hyper-aggregation syndrome. New medication for intraarticular administration was patented (Metotrexate, fixed on phospholipid nano-particles).

***Laboratory of clinical investigations
and international collaboration with TV center***

Head: L.N.Denisov, M.D.

Laboratory was organized in 2004.

Basic directions of investigations:

- Organizing of international multicenter clinical trials of medical agents (phases I-IV)
- Laboratory pre-screening of pts for interna-

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RHEUMATOLOGY OF
RUSSIAN ACADEMY
OF MEDICAL
SCIENCES**



**Head of laboratory
L.N.Denisov, M.D.**



tional studies and making immunological analyses in multicenter clinical studies in Russian Federation.

- Pooling database for out- and in-pats with RD for subsequent including into clinical trials
- Development of protocols and individual case reports for special clinical studies
- Contacts with National and Local ethic committees.
- Creation of the basis of biological materials – collection and keeping of sera and other biological samples for later using.
- Training of researchers in the practice of conducting clinical trials according GCP
- International scientific collaboration with scientific institutions, rheumatologic clinics within the framework of inter-institutional and inter-academic collaboration and non-governmental organizations.
- Strengthening of scientific and business connections with international pharmaceutical companies.
- Assistance in obtaining grants (EULAR, WHO and other funds) aiming at sending young rheumatologists from RF for training and upgrading in rheumatology in the biggest rheumatologic centers of Europe and USA.
- Participation in organization of international symposia. Conferences on international cooperation and with pharmaceutical companies as well.

Basic results of studies:

- Clinical trials on the study of pharmaceutical agents, calculation of the dosage and term of taking allowed to assess the efficacy and tolerability of the contemporary drugs, synthesized according gene-engineering technology.
- Results of the studies proved the importance and necessity of biological agents – monoclonal antibodies to FNO α (Infliximab, Golimumab,

Adalimumab) to interleukin-6 (Tocilizumab) Abatacept et al. in all clinical stages of rheumatoid arthritis.

- High level of investigations widened the possibility of using of studied medications not only for rheumatoid arthritis but for SLE, ankylosing spondylitis, psoriatic arthropathy, amyloidosis, osteoarthritis, non-specific ulcerous colitis, including projects of the 1st phase of the study.

- Existing of contemporary automated laboratory equipment made it possible to conduct unique studies of cellular and humoral immunity for the wide specter of autoimmune rheumatic diseases and to see the perspective of further investigations in the field of genomics and proteomics.

- International scientific collaboration with research institutions, rheumatologic clinics and strengthening contacts with EULAR and its committees, participation in the research projects (PRINTO, SAVE, EUSTAR), obtaining grants for young rheumatologists for training in rheumatologic centers of Europe and USA.

TV medicine

- Medical TV consultations of RD pts,
- Medical TV discussions/consultations/symposia/lectures,
- Training of physicians in rheumatology at the distance,
- Creating of multimedia training programs (lectures, clinical discussions) and appendixes,
- Technical, program, informational support and development of electronic site of the Institute www.rheumatolog.ru.

STATE INSTITUTE OF RHEUMATOLOGY OF RUSSIAN ACADEMY OF MEDICAL SCIENCES





DEPARTMENT OF EARLY ARTHRITIDES

Head: D.E.Karateev, M.D.

Laboratory of prognosis of outcomes and course of rheumatic diseases

Head: D.E.Karateev, M.D.

Laboratory of clinical pharmacology

Head: Ya.A.Sigidin, Professor, M.D.

Department of early arthritides is functioning as a center of early diagnostics and therapy for pts with inflammatory RD, first of all with RA.

Basic directions of activities are as follows:

- Development of methods of early diagnostics of RD,
- Study of the development, methods of prognosis of outcomes and course of RD,
- Improvement of the system of contemporary antirheumatic therapy,
- Development of new methods of pathogenetic therapy of RD,

Scientific work along basic directions is within the frameworks of the "RADICAL" program, which was developed by the personnel of the department and approved by Russian Academy of Medical Sciences.

Main part of the clinical work is connected with the diagnostics of primary articular diseases, including most complicated cases, and also with treatment of inflammatory RD, first of all RA. The personnel of the department are highly qualified rheumatologists with wide practical experience. In their work they apply all the specter of the latest diagnostic procedures and the latest and effective methods of therapy.



**Head of department
D.E.Karateev, M.D.**



Laboratory of clinical pharmacology

In 1965 the clinical pharmaceutical group was organized at the Institute of Rheumatology, which in 1976 was reorganized into the laboratory of clinical pharmacology.

Basic direction of researches in this laboratory was pathogenetic substantiation and development of new methods of RD therapy.

A number of important mechanisms of action for classic antirheumatic agents was determined, in particular the peculiarities of their effect on permeability of capillary and lysosomal membranes, the activity of proteolytic enzymes, energetic support of inflammatory process and factor of medicament stability. For the first time it was demonstrated that different mechanisms could lie at the base of clinical effect and antidestructive action of glucocorticoids.

The laboratory developed a number of new methods of RD therapy – rheumatic fever, RA, ankylosing spondylitis and osteoarthritis. The improvement of biological therapy was the most important result of the studies. For the first time in clinical medicine a new method of anticytokine therapy was applied – the neutralization of gamma-interferon by specific antibodies to this cytokine for the therapy of RA,. The efficacy of other gene-engineering biological agents is actively investigated (Infliximab, Rituximab, Adalimumab).

Awards: Head of laboratory, Professor Ya.A.Sigidin is the laureate of N.D.Strazhesko award of AMS of the USSR.

STATE INSTITUTE OF RHEUMATOLOGY OF RUSSIAN ACADEMY OF MEDICAL SCIENCES



**Head of laboratory
Professor Ya.A.Sigidin, M.D.**





Head of laboratory
Professor J.V. Muraviev, M.D.



Inventions and patents:

1. Medicament for the treatment of collagenoses of rheumatic character. Author certificate No662098 dated 22.01.1979 (Patented abroad).
2. Antirheumatic medicament (Salasopiridazin). Author certificate No 146588 dated 01.06.1988.

Laboratory for investigation of the safety of antirheumatic therapy

Head: Professor Y.V. Muraviev, M.D.

The group on investigation of the safety of anti-rheumatic drugs was founded on 04.03.98 according to the Order No 84 dated 1998.

On the basis of the group the only and unique for RAMS Institutes laboratory on the investigation of the safety of antirheumatic agents was organized according to the Order No14 dated 12 January, 2001.

Personnel:

- Dydykina I.S. – Sen.Res.Assoc., PhD
- Lebedeva V.V. - Sen.Res.Assoc., PhD
- Alexeeva A.V. - Res.Assoc., PhD
- Muravieva N.V. - Jun.Res.Assoc., PhD

Main directions of scientific researches:

Development of approaches to the investigation of the safety of antirheumatic therapy and assessment of adverse events of the drugs in RD pts.

Optimization of finding and prevention of adverse events in RD pts.

Development of approaches for introduction of pharmacological control into rheumatologic practice.

The most important results of the studies and achievements of late:

1. The following methods were developed and introduced in the clinic of the Institute: pharmacological anamnesis as the instrument

of analysis of adverse events on drugs in RD pts, algorithm of registration of adverse events on drugs with quantitative assessment of causative connection.

2. It was determined, that adverse events on drugs are frequent and could be observed in 7.1% of RD pts in the period of hospital treatment, while in out-patients the cases of cancellation of basic anti-inflammatory drugs due to unfavorable reactions could be observed by 2.5 times more often than due to their inefficacy, which could be connected with insufficient monitoring, because Federal recommendations are followed by less than half RA pts, more than half of serious adverse events on drugs were due to medical errors (treatment errors).

Laboratory of clinical immunology

Head: Professor A.I.Speransky, M.D.

Laboratory of clinical immunology was organized at the Institute in November, 1958.

Main directions of scientific researches:

Study of autoimmunity, immune complexes, complement, extra cellular DNA for selection and development of immunodiagnostic methods, evaluation of autoimmunity pathogenesis and activity of pathologic process. Improvement of spectral-fluorescent methods of diagnosis of extra cellular DNA on the basis of highly effective fluorofores.

Under the guidance of Academician V.A.Nasonova the methodical recommendations of Ministry of Health of USSR on immune diagnostics of RD were published, recommendations on diagnostics of post streptococcal reactive arthritis were approved by the Ministry of Health of RF (streptococcal nasal pharyngitis).

STATE INSTITUTE OF RHEUMATOLOGY OF RUSSIAN ACADEMY OF MEDICAL SCIENCES



**Head of laboratory
Professor A.I.Speransky, M.D.**





Head of laboratory
Professor S.G. Radenska-
Lopovok, M.D.



Modified method on determining RF (latex-test) was suggested and approved by the Ministry of Health of USSR.

The certificate on standardization of CRP determination was obtained within the framework of European international laboratory (Labquality) on control of the quality of conducted trials.

The laboratory took part in preparing the methodic recommendation on ASLO determination, determination of the sensitivity to antibiotics, methods of immune correction in autoimmune process (author certificate).

Laboratory of morphogenesis of rheumatic diseases

Head: Professor S.G. Radenska-Lopovok, M.D.

The laboratory was organized according the order of Academician A. Nesterov on 17.09.1959.

Professor N.N. Grizman, M.D., headed the laboratory from the beginning for 30 years. Beginning from 1991 it is headed by Professor S.G. Radenska-Lopovok, M.D.

The personnel of the laboratory study the morphological substrate of RD:

- Early changes in tissues in diffuse diseases of connective tissue,
- Renal pathology in Systemic Lupus Erythematosus,
- Early morphological symptoms of synovitis in RA, psoriatic arthritis, osteoarthritis et al.,
- Development of AA-amyloidosis in RA and its differential diagnostics from AL-amyloidosis,
- Neoangiogenesis and cytokine profile in derma in early systemic scleroderma,
- Pathology of bone tissue in RD.

Contemporary immune diagnostic methods are used in the laboratory and new approaches for diagnostics of RD are developed.

The results of investigations were used for publication of more than 180 articles in scientific journals in Russia and abroad and also chapters in 5 monographs.

The personnel of the laboratory support scientific collaboration with colleagues from Hungary, Poland, Bulgaria, the USA.

PEDIATRIC DEPARTMENT

Head: Professor N.N.Kuzmina, M.D.

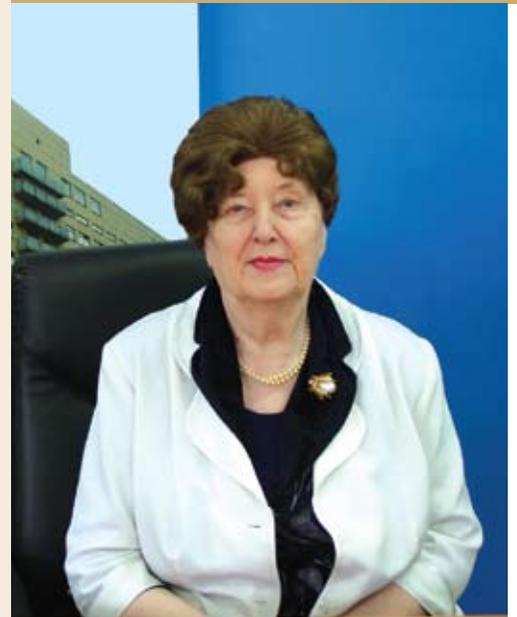
Pediatric department is working at the Institute from the moment of its foundation in 1958. Its first head was Professor A.V.Dolgovolova, Honoured Scientist of RF.

Basic directions of scientific investigations were study of diagnostic problems, clinic and therapy of acute rheumatic fever, juvenile arthritides.

At the result of studies the following data were obtained:

- Successful application of corticosteroids for the therapy of active phase of the disease, which was the breakthrough in the treatment of this pathology.
- Problems of clinical and instrumental diagnostics of mitral and aortic valvulitis were studied, which helped to formulate the conception of cardiac valval lesion.
- The system of stages of therapy was developed and proved true with time (hospital, sanatorium, dispenser).
- Program of primary and secondary prevention of acute rheumatic fever was developed for children.
- Clinical characteristics of mitral valve prolaps syndrome in childhood was presented and its differential-diagnostic symptoms with rheumatic lesion of mitral valve were detailed.

STATE INSTITUTE OF RHEUMATOLOGY OF RUSSIAN ACADEMY OF MEDICAL SCIENCES



Head of department
Professor N.N.Kuzmina,
M.D.





- Diagnostic criteria for juvenile rheumatoid arthritis called East-European were developed in collaboration with other scientific centers of the USSR and some countries of Eastern Europe.

- Working classification of juvenile rheumatoid arthritis was developed.

- Long-term experience of the study of problems of juvenile spondyloarthritis was pooled, regularities of the disease evolution at different ages were determined, as well as diagnostic approaches, classifications and basic points of the conception of juvenile spondyloarthritis were formulated (I.P.Nikishina).

- Method of ultrasound joints scanning in children was introduced, which made it possible to objectively assess local inflammation in the elements of locomotor system and improve early arthritis diagnostics and control the efficacy of treatment.

- The principles of standardizing of ray-diagnostics are developed (X-ray, MRI) for pts with juvenile arthritides.

- A number of international joint investigations on the assessment of efficacy and tolerability of basic antirheumatic drugs, which allowed to consider metotrexate as the drug of the first choice among disease modifying anti-rheumatic drugs, and to obtain the proof of possibility of successful use of selective COX-2 inhibitors (meloxicam, celecoxib).

- Rational methods of pharmaceutical therapy of juvenile arthritides were developed.

- Schemes, regiments and methods of use of glucocorticoid therapy were optimized together with pulse-therapy, intraarticular and systemic (peroral) administration.

- Rational principles of NSAID-therapy at different age groups were determined with special attention paid to safety, prevention and therapy of NSAID-gastropathies and other side effects of NSAID.

- Principles of disease modifying therapy were improved with the use of differential approaches to their indication.

- Possibilities of alternative medicament methods of therapy were studied during refractory variants of juvenile arthritides using bolus administration of high metotrexate doses as well as Leflunomid and TNF β inhibitor (Infliximab).

Positive experience of recombinant growth hormone use in pts with juvenile arthritides, who had considerable delay of physical development was obtained, indications and counter-indications to the use of somatotropic hormone were determined.

New methods of early rehabilitative therapy of JA pts were developed and introduced, which allowed us to improve the functional status and prevent disability.

Laboratory of rheumatic orthopedics and rehabilitation.

Head: from 1961 to 2006 – Professor V.P.Pavlov, from 2006 till present S.A.Makarov, M.D.

Surgical service at the Institute was organized in 1961. Two beds were allowed for surgical treatment of RD pts. At that period V.P.Pavlov made the first in the USSR and Russia surgery of arthrodesis of radiocarpal articulation in RA pts having active arthritis of this joint. Further development of surgical RD treatment was accompanied by organization of the department of surgical and conservative methods of treatment and the group of rheumatic orthopedists headed by V.P.Pavlov. During the first years of work the basic kinds of orthopedic-surgical methods using for rehabilitation in rheumatic pts were mastered and introduced including endoprosthetics of big and small (wrist) joints.

**STATE INSTITUTE OF
RHEUMATOLOGY OF
RUSSIAN ACADEMY
OF MEDICAL
SCIENCES**



Professor V.P.Pavlov, M.D.



**Head of laboratory
S.A.Makarov, M.D.**



Basic scientific direction at that period was the development and up-dating of the native surgical methods of rehabilitation treatment of RD pts with articular lesions. The development and introducing into clinical practice of orthopedic-surgical treatment of knee joint in RA pts were considered the important results at that period of activity. We detailed the indications and counter-indications to synovectomy of knee joint taking into account the activity of the disease, therapeutic and preventive value of early synovectomy was demonstrated within the framework of multicentral study of 10-year-long results of this surgery by European rheumatic surgeons (IX EULAR Congress, 1983, Moscow). The problems of regeneration and recurrence of the synovial membrane after synovectomy (T.M.Trofimova) were studied. On this basis the own method of prevention and treatment of arthritis relapses of operated joint was developed. The method of posterior capsulotomy of the knee joint was up-dated and introduced into orthopedic departments in Moscow and is used in clinical practice up to present time (V.P.Pavlov). Important results were obtained during investigation of monoarticular RA form (E.S.Abasov). It turned out that rheumatoid monoarthritis is the polyarticular form of the disease; during the study of intact according to clinical symptoms joints the morphological symptoms of rheumatoid synovitis were found (latent phase of the disease). The principles of conservative rehabilitation of RA pts with wrist lesions were developed jointly with Polish rheumatologists (T.M.Pavlenko). In 1987 in the new building of the Institute the laboratory of rheumatic orthopedy and rehabilitation with orthopedic department were organized. For the 20-year-long period of working the contemporary methods of endoprosthetics of hip, knee and small wrist joints were mastered and intro-

duced into clinical practice. On the whole more than 1200 endoprosthetics were done with excellent and good results in 90-92% of RD pts with extremely late stages of arthritis in these joints. Most important scientific achievement in this period was the study of mineral bone density after endoprosthetics of the hip joint (S.A.Makarov, M.A.Makarov). At the result of surgery the pts develop stress remodeling with the reduced BMD around the components of endoprosthesis, which during the first postoperative year is recovered only partially. Basing on this study in postoperative period after endoprosthetics of large joints the intensive antiosteoporotic medication treatment is administered with the view of prevention of instability of implants. For the last 3 years the laboratory is developing the system of rheumatic orthopedic rehabilitation of the balanced use of effective methods prior to prosthetic surgery, including arthroscopic synovectomy and endoprosthetics, which could provide 80-90% successfully recovered RD pts with articular pathology of low and upper extremities. The development of method of chondroplastics in focal cartilage lesions should also be noted.

Two M.D., 16 Cand.Med.Sci. were trained in the laboratory. 14 author certificates were obtained. The patent of knee joint endoprosthesis was awarded Golden medal at the European Exhibition in Brussels. More than 347 articles were published.

STATE INSTITUTE OF RHEUMATOLOGY OF RUSSIAN ACADEMY OF MEDICAL SCIENCES





Head of the Center
Y.V.Sundukov, M.D.



TV MEDICINE

Center of new informational and telecommunication technologies

Founded in 2005.

Head: Y.V.Sundukov, M.D.

Leading engineer on informational and communication technologies: A.J.Tarkhanov

Sci.worker: N.V.Klimova

Basic directions of the activities:

- Telemedical consultations for RD pts
- Telemedical consultations/meetings/symposia/lectures
 - Training of physicians in the specialty of rheumatology at the distance
 - Creation of multimedia training programs (lectures, clinical discussions) and appendixes
 - Development and informational support, publication of multimedia programs: "Rheumatology –interdisciplinary problems", Electronic publications of State IR of RAMS - the journal "Scientific-practical rheumatology/Internet;
 - Technical, program, informational support and development of electronic site of the Institute www.rheumatolog.ru;
 - Publicity, contacts with community and mass-media.
- Organizational-methodic support of continuous distance up-grading for technical specialists in the field of medicine;
- Organization of scientific TV conferences with translation in Internet;
- Development of new technologies for TV medicine;
- Instrumental-technical attending of the work of Conference-hall and Special council-hall;
- Organization of interactive voting at some Institute activities (Scientific council, testing of the level of knowledge of post-graduates, schools of rheumatologists);

- Multipoint TV translation and video of the events at the Institute;
- Preparing of photo materials for clinical departments;
- Preparing of multimedia training programs for pts (medical exercises);
- Issuing of annually up-dated program “Rheumatology in slides”;
- Organization and technical support of the Institute participation in international and all-Russia medical expositions;
- Development of brand-style and preparing of designs (programs, badges, certificates, invitations et al.) for the events of the Institute;
- Preparing and development of the book “50th anniversary of the Institute of Rheumatology”
Perspectives of the development
- Widening of the zone of contacts with other regional and national TV centers;
- Opening of Moscow and All-Russia TV medical school for RD pts;
- Multipoint translation of meetings of Scientific Society to RF regions;
- Development of mobile system of TV communication;
- Preparing of electronic program “ATLAS-rheumatology”;
- Development of photo archive and electronic album “Rheumatology in RF”
- Preparing and issuing of the book “Rheumatology in Russia” (printed and electronic versions);
- Preparing and issuing of the book “Book for RD patients” (printed and electronic versions)

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They work at the Institute from the date of the founding

**Academician of RAMS,
Nasonova V.A.**



**Professor
Guseva N.G.**



**Professor
Kuzmina N.N.**



**Professor
Sigidin Ya.A.**



**Professor
Ivanova M.M.**



**Professor
Speransky A.I.**



**Physician
Oskilko T.G.**



**Nurse
Kovalenko N.V.**