



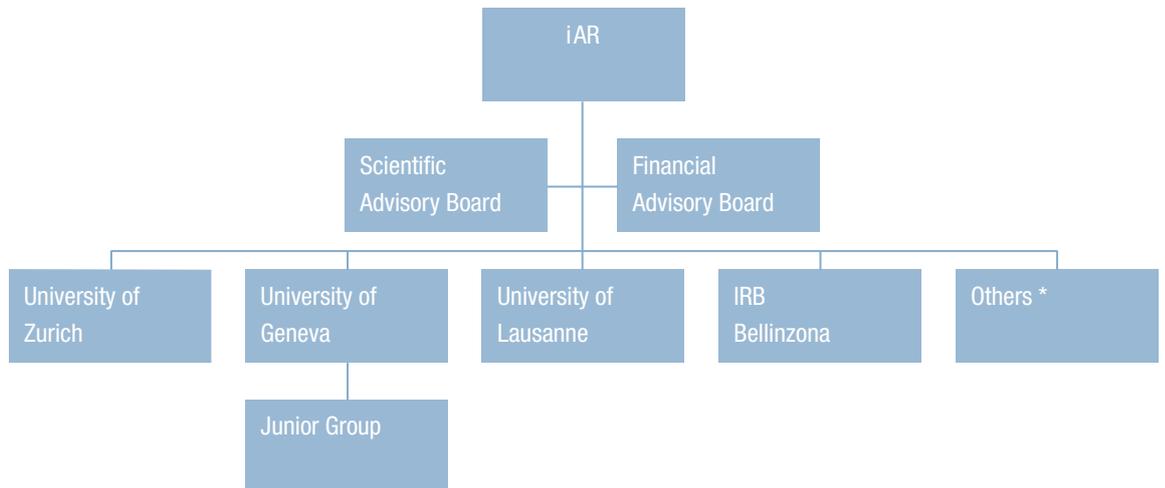
Turning Research into clinical Application for Arthritis Care

An Initiative by 4 Leading Research Institutions
in Switzerland

Organization

iAR is a tax-exempted association located at University of Lausanne. It consists presently of four independent research institutes and is headed by Prof. Cem Gabay at Division of Rheumatology University of Geneva.

Each research groups has its own laboratory spaces, researchers, and administrative personnel provided by their institutions or additional grants. The research groups are independent but committed to collaborate on common projects to achieve iAR objectives.



* Depending on final regulations iAR board is open for participation of major donors

Ecosystem

All iAR members have active collaborations with several research groups in Europe and the United States. It is the objective to strengthen international collaborations with other groups involved in arthritis research by obtaining common grants. iAR will support international research meetings and student exchanges.

Scientific advisory board:

- Prof. Lars Klareskog**
Rheumatology
Clinic & Research
Unit Karolinska Institute,
Stockholm
- Prof. Marc Feldmann**
Kennedy Institute of
Rheumatology, London



Collaboration with industry

iAR will collaborate with industry partners for development of diagnostic assays and preclinical development of therapies.

Background

Bone and joint diseases (also termed rheumatic diseases) are a frequent cause of referral to physicians (1/3 of consultations in general practice) and a major cause of longterm disability. Thus, in addition to patient distress, rheumatic diseases represent a major financial burden for the Society. Inflammatory arthritis such as rheumatoid arthritis, ankylosing spondylitis, and psoriatic arthritis are the most severe forms of rheumatic diseases affecting approx. 2-3% of the general population. Despite major therapeutic developments during the past decade, a large percentage of these patients do not respond favorably to new treatments. Osteoarthritis is a degenerative joint disorder and the most frequent form of arthritis that is associated with progressive joint destruction and disability. Currently, there is no treatment to stop the progression of osteoarthritis and for most patients surgical joint replacement is the only option.

History & Status

iAR was established in Lausanne in 2009 with a 10 MCHF donation paid over five years to the founders, 4 top Swiss laboratories in the field of arthritis research and immunology. iAR was founded and led by the late Prof. Jurg Tschopp and is currently directed by Prof. Cem Gabay (Division of Rheumatology University of Geneva).

The achievements of iAR include:

- The development of a research network in Switzerland with collaborative research projects and publications in leading journals (Nature, Blood, Immunity, Arthritis & Rheumatism)
- The development of international collaborations
- The establishment of a common facility for the deposition of reagents at Department of Biochemistry, University of Lausanne.
- Establishment of a professorship in Arthritis Research at University of Geneva.
- Strengthened education in arthritis research through support to the Annual Joint Congress of the International Cytokine Society and the International Society for Interferon and Cytokine-research in Geneva September 2012.

Objectives

Arthritis is a common medical problem that associates with pain, disability and important loss of quality of life. Recently, significant therapeutic progresses have been accomplished but there are still unmet needs highlighting the importance to pursue research in the field of arthritis. The opportunity to include basic research groups as well as laboratories linked to clinical Departments is a major strength of iAR that provides the possibility to translate into clinical applications fundamental laboratory discoveries.

The overall objectives for upcoming years are:

- To support fundamental research in arthritis in a national framework with the possibility to develop translational research with an impact into the clinic
- Valorization of the fundamental research results by bringing preventive measures, diagnostic and therapy products to the clinics for the patient's benefit.

The ultimate objective is to form a leading Center of Excellence for Arthritis Research hosting several laboratories and research groups with a financial requirement of approximately 50MCHF.

Key Aspects of Project Groups

Groups are involved in different aspects of arthritis research including the discovery of key mediators of inflammation, pathogenic antibodies, and mechanisms controlling the expression of genes with potential for the development of diagnostic and therapeutic procedure.

University of Geneva

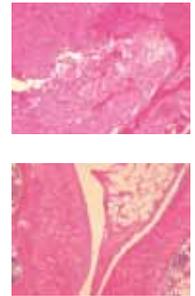
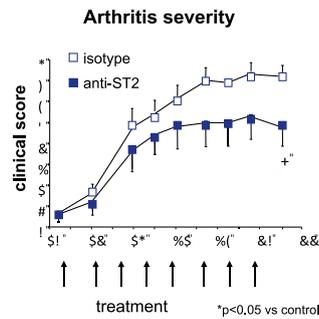


Prof. Dr. Cem Gabay
 University of Geneva
 Head, Division of Department Rheumatology
 President of Swiss Society of Rheumatology (2008-2012)

Cytokines are small peptides that play a critical role in regulating inflammatory and immune responses.

Studies on the regulation and function of cytokines has led to a better understanding of the pathogenic mechanisms involved in several rheumatic diseases and has allowed the emergence of therapies targeting cytokines. Today, some of these therapies have improved the management of several rheumatic diseases.

The center in Geneva is one of the leading groups in cytokine research applying the findings of the laboratory to clinical studies in patients.



University of Lausanne

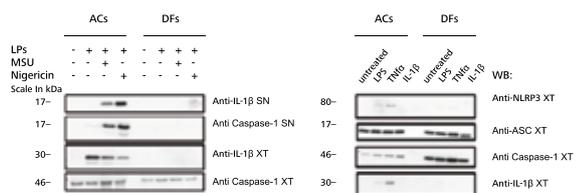


Prof. Dr. Nicolas Fasel
 University of Lausanne
 Director Department Biochemistry
 Faculty of Biology and Medicine

Chronic inflammation is a key aggravating parameter in rheumatoid arthritis. Studying the innate immune system and its cellular machinery is essential to understand basic principles and pathways leading to chronic inflammatory diseases.

Several major contributions by the Department of Biochemistry have been made on the dissection of such pathways using molecular and cellular tools, leading in the reappraisal of therapies of inflammatory disease such as gout.

New avenues to control inflammation will be investigated in the next years using a large collection of mouse models and innovative tools.



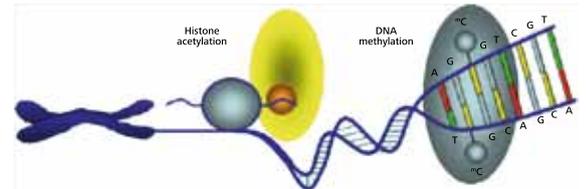
University of Zurich



Prof. Dr. Steffen Gay
University Hospital Zurich
Head of Center of Experimental Rheumatology

Epigenetic imprinting by environmental factors has emerged into the center of experimental molecular research and recently also of public interest. Epigenetics is the study of all heritable and potentially reversible changes in genome function that do not alter the nucleotide sequence within the DNA, in more simpler terms, epigenetics regulates gene expression.

Biochemical processes such as acetylation, methylation, phosphorylation, sumoylation and microRNAs are acting in a fine tuned concert of regulating gene expression in health and disease. Also in rheumatic diseases epigenetic research has resulted in a quickly accelerating number of publications at the center in Zurich and novel diagnostic and therapeutic strategies are on the horizon which need to be implemented in future research.



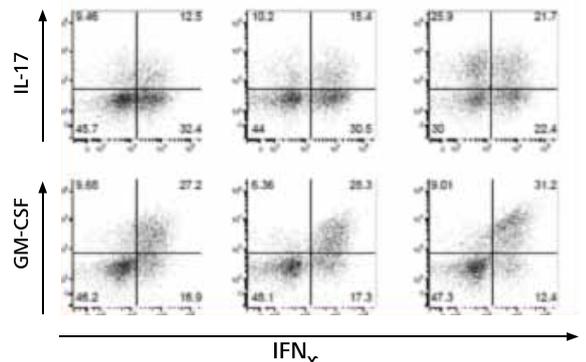
Institute for Research in Biomedicine Bellinzona



Prof. Dr. Antonio Lanzavecchia
Institute for Research in Biomedicine Bellinzona
Managing Director
ETH Zurich Professor for Human Immunology

The crosstalk between immune cells and the bone is at the center of the emerging interdisciplinary field of Osteoimmunology. Researchers at the IRB, a recognized center of excellence for human immunology, aims at obtaining insights in the molecular, cellular and systemic interactions between cells and molecules of the adaptive immune system (T lymphocytes, B lymphocytes, antibodies) and the skeletal system.

Using new high throughput cellular screening platforms they will explore the immune response in rheumatic diseases, such as rheumatoid arthritis and ankylosis spondylitis, and how the response changes following therapy with biological agents (anti-CD20, anti-TNF, anti-IL-1, anti-IL-6, anti-integrins).



Further Expansion & Activities

Visibility

The results of the research will be presented in international meetings and published in leading scientific journals. The support of iAR will be acknowledged.

iAR will support international meetings by inviting speakers and organizing specific meetings. iAR could also support some wide audience presentations, if appropriate.

Encouragement for young scientists in the field

iAR will support the participation of students to scientific meetings and will organize summer schools on arthritis research to promote this field of research among young scientists.

Collaboration with industry

Representatives from the pharmaceutical industry will be invited at specific annual meetings to report on novel results and strategies as well as explore future collaborations.

Prospective income through royalties and other services

Income from patents will support to cover operational costs of the Centre of Excellence from approximately 2020.

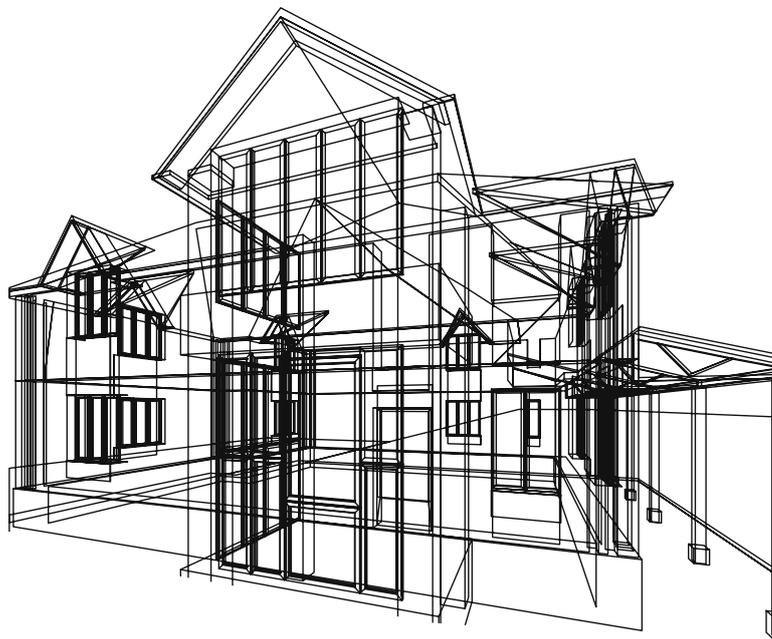
Interaction with patient organizations

Communication about projects and results of research with patients organization in Switzerland (Swiss League against Rheumatism) and in Europe.

Vision 2020

The overall aim of iAR is to strengthen arthritis research in Switzerland. We are thus planning to establish a centralized institution as Centre of Excellence, hosting 4-6 laboratories and research groups, thus providing the possibility to increase scientific interactions and common research facilities. This Centre of Excellence with a capacity for 50-100 scientists will further reinforce the possibilities of organizing seminars and student exchanges with other centers in Switzerland and abroad. This project will require funding starting 2015 to support laboratory space rental, acquisition of laboratory equipment and administrative expenses.

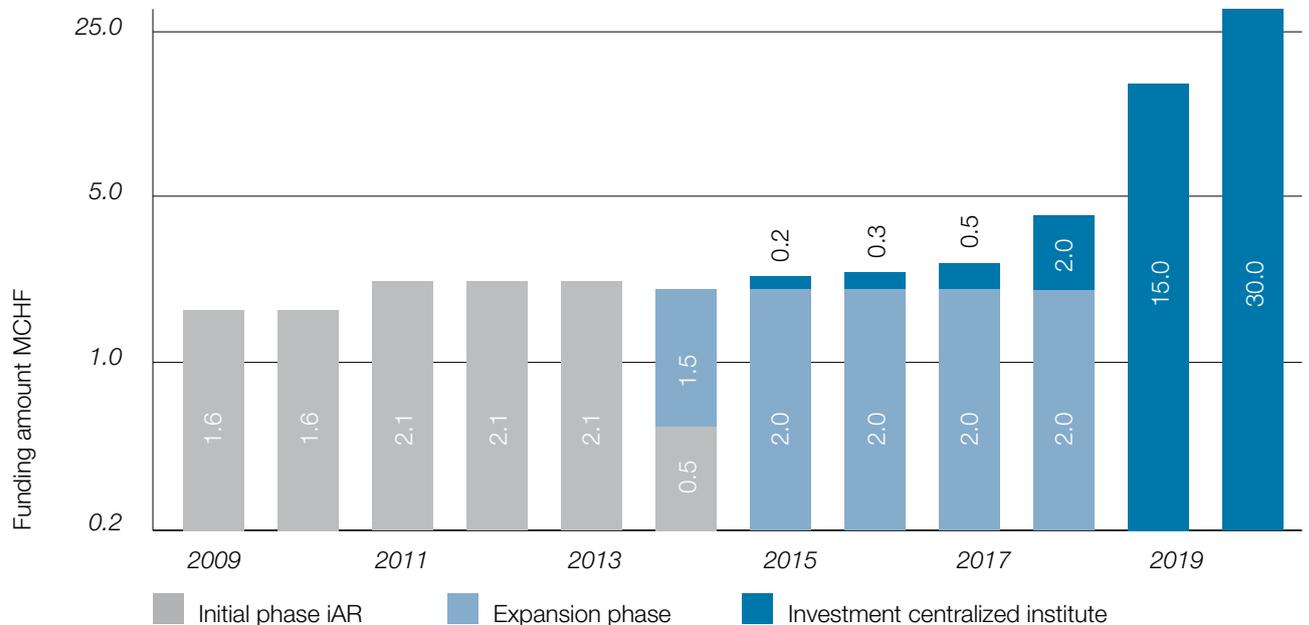
Planned Centre of Excellence (Sample)



Timetable & Financial Requirement

While iAR funding until summer 2014 is fully covered, the expansion phase (2015-2018) has a need of 2 MCHF per year to continue the existing research projects. Financial support will cover salaries of scientists working on iAR projects (doctoral students and postdoctoral fellows) and provide funding for research running costs (equipment and material) in the participating laboratories.

Financial planning 2009 - 2020



Starting 2015 first steps for planning the centralized Centre of Excellence will be initiated.

Financial Resources

The initial 10 MCHF donation was the seed of the ambitious project to set up a Centre of Excellence in Arthritis Research in Switzerland. With an innovative and well balanced fundraising initiative we expect to receive financing from following sources:

- *Public authorities*
Public financial support will be solicited from NSF (Swiss National Science Foundation) as well as international granting agencies.
- *Pharmaceutical corporations*
Considering the costs for the public health-systems it is likely that the pharmaceutical industry will have an interest in such research initiative.
- *Industrial and financial corporations*
Firms associated with the health-sector may wish to “hold a foot in the door”.
- *Swiss and international foundations*
There are very potent foundations in Switzerland and abroad, which engage in projects to help reducing hardship and pain of the aging populations.
- *Private High Net-worth Individuals*
Experienced entrepreneurs have made large fortunes, which they might reinvest in projects with potential returns.

Depending on the reactions of our initial contacts, specially designed fundraising products will be offered to attract these target-groups and to fulfill their expectations in terms of sponsorship and/or return through participations in royalties and patents.

List of Publications

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