

# IMPACT ASSESSMENT OF THE



**ARTHRITIS**  
N A T I O N A L  
**RESEARCH**  
F O U N D A T I O N

*REVIEW COMPLETED JUNE 2013*

## THE REPORT

The Arthritis National Research Foundation is most grateful for the efforts and careful examination of its methods and results evaluated by the esteemed team of reviewers. This review is a long-term follow up of ANRF grants awarded and the grant recipients.

The following report appears as delivered by the reviewers in its entirety. The actual names of ANRF grant recipients have been removed from the report; this is the only modification and the reviewers have been informed of this action

## RATING DESCRIPTION

*The scoring is a quantitative measure of how well ANRF has performed as 1) it relates to our mission to cure arthritis through research and 2) to fund research by supporting early-stage MD and/or PhD investigators. The scoring should also take into consideration ANRF's size and annual budget of less than \$2 million.*

**5 – Outstanding:** *Performance far exceeded expectations due to exceptionally high quality of results in all essential areas of responsibility, resulting in an overall quality of work that was superior for comparable size organizations.*

**4 – Exceeds Expectations:** *Performance consistently exceeded expectations in all essential areas of responsibility, and the quality of results overall was excellent to a comparable sized organization. Annual goals were met.*

**3 – Meets Expectations:** *Performance was consistently at the expected level for a comparable size organization and the quality of results was very good. Goals were met.*

**2 – Improvement Needed:** *Performance did not consistently meet expectations for results – performance failed to meet expectations in one or more essential areas and some of the critical goals were not met.*

**1 – Unsatisfactory:** *Performance was consistently below expectations in most essential areas of responsibility, and/or reasonable progress toward critical goals was not made. Significant improvement is needed in one or more important areas.*

# **THE INDEPENDENT REPORT**

## **INTRODUCTION**

The goal of the Arthritis National Research Foundation (ANRF) is to support promising early investigators conducting research with the goal of finding new treatments or cures for arthritis and autoimmune diseases. The ANRF began in 1970 funding one or two scientists in California, but now funds 12 to 16 investigators per year at \$75,000 per year, renewable for two years. Since 1998 applications have been reviewed by a Scientific Advisory Board which identifies those applications which demonstrate the highest scientific merit. The ANRF has funded over 200 PhD and/or MD scientists at research facilities across the United States. The current assessment was undertaken to address the impact of the research funding provided by the ANRF.

## **EXECUTIVE SUMMARY**

Our review has determined, based on the details provided below, that the ANRF has been extremely successful in fulfilling its mission to support promising young investigators to become independent investigators and major contributors to the field of arthritis and autoimmunity research. The quality of the projects and the investigators selected was considered outstanding. The program is clearly accessible to young investigators on a national basis. The success of the ANRF at choosing the best scientists, determined by success in developing an independent research program, extramural support and meaningful publications was also considered outstanding. Overall, the success by all criteria considered was achieved by greater than 35% of funded investigators, which we consider quite remarkable. In addition, other ANRF grant recipients have made, and continue to make, meaningful research contributions to the field. These investigators would bring the overall success rate to ~75%.

Two concerns were identified, which may be considered by the ANRF to enhance the success of the program. First, given that the number of funded grants, and the size of the awards, has been stable for a decade, it is evident that the ANRF will need to increase the magnitude and number of grants in the future if it is to retain its strong record of accessibility. Simply put, the need is increasing, and the ANRF will have to expand to meet this need if it is to remain a vibrant contributor to the success of young investigators. Second, a recurring theme of those awardees who achieved partial or no success (although the percentage is small), is that they were awarded grants as postdoctoral fellows or research associates. Awardees that were more likely to be successful were those that received support at the assistant professor level and appeared to have some level of institutional commitment.

**OVERALL RATING: 5**

## **SPECIFIC AREAS ADDRESSED**

### **1) Are the projects sound and of high quality?**

To assess this question, we focused on two metrics. Did the trainee have publications on the topic of the grant proposal? Has the trainee progressed successfully to an independent research career? By addressing both these questions, we were able to assess whether the proposals were sufficiently well

supported in their rationale and preliminary observations to field publishable data and we will be able to assess whether the project, the mentor and the environment in combination permitted the trainee to develop an independent scientific program.

**2004-2005:** 13 awards were made

All 13 published papers related to the grant proposal. All investigators except one are now in independent positions. Many of these positions involved continued research activity. Alternatively, others such as those in pharmacy rely on past research experience and familiarity with data analysis.

**2005-2006:** 10 new awards were made

All 10 published peer-reviewed papers related to their grant proposal. All continue to publish in arthritis related fields.

**2006-2007:** 9 new awards were made

8 published peer-reviewed manuscripts related to the grant proposal. Two recipients appear no longer to be involved in a career that relies on research training.

**2007-2008:** 11 new awards were made

10 published peer-reviewed papers relevant to the grant application. All but one appears to be pursuing careers that rely on research training.

**2008-2009:** 7 new awards were made.

4 published peer-reviewed papers relevant to the grant proposal. Six appear to be pursuing careers that rely on research training.

**2009-2010:** 8 new awards were made

All 8 published peer-reviewed papers relevant to the grant proposal. All but one is clearly pursuing careers that rely on research training.

**Section Conclusion:** Overall success of the awardees during their fellowship period was outstanding and the training clearly contributed to their professional success.

**RATING FOR THIS SECTION: 5**

## **2) Are the investigators of sufficient quality?**

The quality of the investigator can be assessed by their ability to develop a successful career.

**2004-2005:** Of 11 awardees, all are in responsible positions in academia or pharma.

**2005-2006:** Of 10 awardees, all but 2 have faculty positions at excellent institutes.

**2006-2007:** Of 9 awardees, all but 2 have faculty positions.

**2007-2008:** Of 11 awardees, 8 have faculty positions and one is with pharma.

**2008-2009:** Of 7 awardees, 5 have faculty positions and one is with pharma.

**2009-2010:** Of 8 awardees, 6 have faculty positions.

**Section Conclusion:** This is an outstanding level of success and certainly reflects the high quality of the trainees.

**RATING FOR THIS SECTION: 5**

### **3. Is the ANRF accessible for a young investigator?**

The ANRF has generally been more accessible to young investigators than other foundations that fund research in the field of arthritis and autoimmunity. Over the past dozen years, the success rate for submitted applications has averaged slightly over 25%. This success rate exceeds, for example, the success rate of the Arthritis Foundation programs for young investigators during the same period.

The ANRF success reflects two crucial aspects of a robust research program: (i) the program attracts a sufficiently large number of applications so that it is able to be selective about the quality of research that it supports; and (ii) the program is accessible to a substantial fraction of applicants. That said, review of the funding history indicates that the ANRF has been subject to the same pressures that have been affecting biomedical research generally. Specifically, the success rate of submitted grants has declined in recent years to 15-20%. This is still a respectable success rate, but if the downward trend continues, it will inevitably have an adverse impact on accessibility. Given that the number of funded grants, and the size of the awards, has been stable for a decade, it is evident that the ANRF will need to increase the magnitude and number of grants in the future if it is to retain its strong record of accessibility. Simply put, the need is increasing, and the ANRF will have to expand to meet this need if it is to remain a vibrant contributor to the success of young investigators.

**RATING FOR THIS SECTION: 4.67**

### **4. Does the ANRF fund show evidence of aiding young investigators to compete on a national level?**

As described in detail in section 5 below, the ANRF has an outstanding record of achievement in aiding young investigators to compete on a national level. Over the past decade, roughly 35% of ANRF investigators have established independent research careers with funding from national sources. While analogous statistics from comparator programs are not readily available, given the overall funding climate during this period of time, the success rate of ANRF investigators should be considered to be outstanding. In addition, as indicated below many of the other awardees have made, and continue to make, meaningful research contributions to the field. These investigators would bring the overall success rate to ~75%. It would be unrealistic to expect a higher rate of retention.

The ability of ANRF recipients to compete on the national level is amply reflected by the impressive list of leading academic centers at which former ANRF grant recipients now hold faculty positions. These

include: Harvard, Stanford, Michigan, Penn, North Carolina, Oklahoma, UCLA, UCSD, Colorado, Arizona, Loyola, Rush, University of Illinois Chicago, Washington University, St. Louis, Mayo, NYU, Case Western, Penn State, Tufts, USC, and Scripps Research Institute. This list speaks not only to the quality and success of the ANRF grantees, but also to the breadth and impact of the program nationally.

## **RATING FOR THIS SECTION: 5**

### **5. How successful was ANRF been in choosing the best young scientists?**

The ANRF has defined the qualifications of those who are eligible to apply. Investigators must possess an M.D. and/or a Ph.D. degree or equivalent, and be affiliated with a qualified, non-profit institution. Preference will be given to senior post-doctoral investigators transitioning to independent investigator status and new assistant professors. Applicants may not have (or ever had) an NIH R01 grant or equivalent. ("Or equivalent" is defined as receipt of an NIH K08 grant and other support totaling more than \$200,000 per year.). In order to assess the success of the ANRF, we considered the success of the investigators chosen following receipt of the award employing the following criteria: establishment of an independent research program, obtaining independent funding, especially an NIH R01, but also K awards and foundation funding, overall impact on understanding the pathogenesis of arthritis and other autoimmune diseases based on high quality publications. We considered specific time frames and will include each investigator only once. For this analysis, years 2004 to 2011 were evaluated since the data were available and there was generally sufficient time to evaluate the progress of the awardees.

**2004-2005:** 13 awards were made, 12 had data to evaluate: Three met all criteria for success. One directs orthopedic research as UT Southwestern and continues to publish. One is a productive Assistant Professor at Columbia, heavily involved in research. Two do not appear to have achieved research independence. Two have positions in pharma which appear to be responsible for identifying new therapies, and this would be a successful outcome. **Overall:** Outstanding success.

**2005-2006:** 10 additional awards evaluated: Four met all criteria for success including R01 support, an independent research program and ongoing high impact publications. Two additional individuals have been very successful and have K awards and continue to publish. Three still publish to some degree but have not achieved the success as defined above. **Overall:** outstanding success.

**2006-2007:** Nine additional awardees were evaluated. Three have achieved success by all measures. Four were partially successful: one has a K08, one appears to have an independent position but no apparent grant support and few publications; one has publications but not an independent laboratory or R01 support (as listed, he may be a co-investigator). Two have not achieved the milestones of success. **Overall:** outstanding success.

**2007-2008:** The progress of 12 awardees was evaluated. Three achieved success by all measures. Partial success was achieved by five awardees: one completed a K08, has relevant publications, and is still struggling; one has a lab, formerly had an R21 and publications; one has own program, LRI support and publishes regularly; one has a current K01 and moderate publications. The goals have not been achieved in five. **Overall:** outstanding-excellent success.

**2008-2009:** The progress of 7 awardees was evaluated. Three achieved success by each parameter. Three have published but demonstrate no evidence of independence. No record of progress by one awardee was found. **Overall:** excellent success.

**2009-2010:** The progress of 8 awardees was evaluated. Progress is less mature for this group since the final grant year was only two years ago. It is likely that 4 met criteria for success: one has a tenure track position and relevant publications, but the grant support as co-PI could not be confirmed on NIH Reporter; one has achieved success with an independent laboratory, two R21s and an R03, but the R01 could not be found on NIH reporter; one has achieved success by each measure. Given the timing of the grant year under review, another awardee is also successful with a current K08 award and relevant publications. Partial success was achieved by three others with relevant publications and by another with relevant publications and an ACR Investigator award. **Overall:** outstanding success.

### **CONCLUSION**

The ANRF achieved a remarkable level of success, as defined above, during the period under evaluation. However, a recurring theme of those awardees who achieved partial or no success is that they were awarded grants as postdoctoral fellows or research associates, generally in the laboratories of successful investigators. In many instances these individuals were recently arrived in the United States and the ANRF award appears to have supplemented the progress of the established investigator, rather than the young investigator. Awardees that were more likely to be successful were those that were made at the assistant professor level and appeared to have some level of institutional commitment. Based on these observations, the ANRF has an outstanding record of identifying and helping young investigators. It is an especially critical program for PhD investigators, since there is not a comparable grant in the field of arthritis and autoimmune diseases. One former (prior to the period of review) PhD recipient related that this was the most important grant he received because together with his K01 he was actually able to accomplish the research goals that led to multiple funded R01s. Further, the ANRF might consider modifying the eligibility requirements to either exclude postdoctoral fellows or more stringently define the qualifications for funding senior fellows transitioning to independent investigator status.

**RATING FOR THIS SECTION: 5**

## THE REVIEWERS

**Authors:** Betty Diamond, MD, David Wofsy, MD and Richard Pope, MD

### **Background of Review and Reviewers:**

The Scientific Advisory Board and Board of Directors of the Arthritis National Research Foundation determined that an assessment of the Arthritis National Research Foundation's success by an independent review panel of national experts would help the organization to evaluate its current and future direction. They wanted questions answered as to whether or not they were funding the best research and researchers, the science conducts as a result of the grants awarded was making a significant impact and what areas needed improvement.

The three independent reviewers are world-renowned physician researchers who represent outstanding research institutions in geographically diverse locations across the U.S. None of these individuals has ever had a young researcher receive grant funding from ANRF.

Here is a brief biography for each member of the Independent Review Panel:



### **Betty Diamond, MD**

*Investigator & Head, Center for Autoimmune and Musculoskeletal Diseases*

*The Feinstein Institute for Medical Research, Manhasset, NY*

*Professor of Molecular Medicine and Medicine, Hofstra North Shore-LIJ School of Medicine*

Dr. Diamond graduated with an MD from Harvard Medical School.

Her residency in internal medicine was at Columbia Presbyterian

Medical Center and she received postdoctoral training in immunology at the Albert Einstein College of Medicine.

A former president of the American Association of Immunology, Dr. Diamond has also served on the board of directors of the American College of Rheumatology and the Scientific Council of the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS). Dr. Diamond is a fellow of the American Association for the Advancement of Science (AAAS) and a member of the Institute of Medicine.



**Richard M. Pope, MD**

*Chief, Division of Medicine-Rheumatology  
Mabel Greene Myers Professor of Medicine -- Rheumatology  
Northwestern University Feinberg School of Medicine*

Dr. Pope received his MD from Loyola University, Chicago, IL in 1970 and his fellowship training in Rheumatology at the University of Washington Medical Center in 1974.

His research spans a broad spectrum of inflammatory and autoimmune diseases and mechanisms: Apoptosis, Arthritis, Cytokines, Gene Regulation, Psoriatic Arthritis, Reactive Arthritis, Rheumatoid Arthritis, Signal Transduction, Sjogren's Syndrome, and Vasculitis



**David Wofsy, MD**

*Professor of Medicine and Microbiology/Immunology  
University of California, San Francisco, CA*

Dr. Wofsy received his MD from the University of California, San Diego in 1974, and his medical residency training and rheumatology fellowship training from the University of California, San Francisco. He joined the UCSF faculty in 1980. Dr. Wofsy also serves as Associate Dean for Admissions for the UCSF School of Medicine. He has served on numerous NIH study sections, and on the Arthritis Advisory Committee of the Food and Drug Administration. Dr. Wofsy

is a past-President of the American College of Rheumatology.

Dr. Wofsy's research program is devoted to the development of novel therapies for autoimmune diseases, particularly systemic lupus erythematosus (SLE).

*Thank you for taking the time to read this report; we hope that you now have a greater understanding of the mission and the research success at the Arthritis National Research Foundation.*