

Summary of the Evaluation of the ORIP Special Emphasis Research Career Award (SERCA) Program (K01).

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Background

The purpose of the NIH Mentored Research Scientist Career Development award (K01) program is to provide support and “protected time” for an intensive, supervised career development experience in the biomedical, behavioral, or clinical sciences that will lead to an independent research career. Although all of the participating NIH Institutes, Centers or Offices (ICOs) use the K01 grant mechanism to support career development; some ICOs utilize this mechanism to foster research workforce diversity by providing enhanced research career development opportunities to specific biomedical professionals (MD, DDS, RN, and DVM among others). The Division of Comparative Medicine (DCM), within the Office of Research Infrastructure Programs (ORIP) / DPCPSI / NIH-OD, funds Special Emphasis Research Career Awards (SERCAs) in Pathology and Comparative Medicine. These K01 awards are intended specifically to assist graduate veterinarians who have experience in animal/comparative research to become independent investigators in areas related to biomedical science. SERCA emphasizes an in-depth mentored research experience in basic or clinical scientific disciplines and provides up to 5 years of support for individual grantees. The goal is to help to meet the needs for veterinarians with expertise in biomedical/translational research, as documented in several studies including those conducted by the National Academy of Sciences (*National Need and Priorities for Veterinarians in Biomedical Research*, 2004, and *Critical Need for Research in Veterinary Science*, 2005).

Since its beginning in 1982, approximately 125 veterinarians have received training through the SERCA program. Currently, the program supports, on average, 17 veterinarians per year, including 3-4 new grantees, with an average annual budget of about \$2.4 million.

Since its inception more than 30 years ago, an independent evaluation of the program has not been done. Therefore, in 2012 the DCM assessed the extent to which the program is achieving its original goals. The evaluation proposal was awarded to a contractor, Westat (Rockville MD) in an open competition.

Objective

To evaluate the K01 program supported by ORIP to determine if it is achieving its goal of increasing the workforce of veterinary investigators in biomedical science and fostering their scientific independence.

Methodology

Focus Groups. Past SERCA grantees were interviewed to ascertain their overall impressions of the utility of the award and its effect on their later careers.

Statistical Analysis of SERCA grantees and Comparison Groups

Considerations:

- All SERCA participants who had completed the 5-year program between 1983 and 2009 were included in the treatment group, which totaled 72 individuals.

- The comparison group consisted of the 82 individuals who had applied for a SERCA grant between 1983 and 2004 but never received an award. This group was chosen because it was closest in background to the SERCA awardees.
- The year 2004 was used as the cutoff for the comparison group because this was when the SERCA participants who completed their programs in 2009 had applied for their SERCA grants.
- Individuals whose applications were not scored were excluded from the analysis.
- The total populations of both the treatment (72 individuals) and comparison (82 individuals) groups were included in this study. Therefore, tests for statistical significance of differences, which are performed when sampling is done, were not conducted in this evaluation (Loether, Herman, J., and McTavish, Donald G. (1993). *Descriptive and Inferential Statistics: An Introduction*, 4th ed. Boston: Allyn and Bacon).

Main Findings:

1. Focus Groups:

- Awardees in general found their experiences as funded by the SERCA grants to be of value. The provision of protected time, and funds for supplies and indirect costs were cited as particularly beneficial features of the SERCA program.
- Awardees considered that provision of independent funding by the SERCA grant enabled a transition to a first faculty position.

2. Statistical Analysis:

- The majority of both the SERCA awardees and the comparison group were employed in an academic institution. A slightly greater percentage of the SERCA grantees (76%) had positions as Assistant, Associate or full Professors relative to the comparison group (68%) [See Table 5 in the Evaluation of the Special Emphasis Research Career Award (SERCA) Program (K01) document]. Following completion of their SERCA award, grantees submitted a greater number of NIH grant applications (383 vs. 273) [Table 11], were awarded a greater number of grants (83 versus 58) [Table 11] and received more research awards (55 vs 32) - especially R01 (35 vs 14) [Table 12] - than the comparison group.
- SERCA participants (58 of 72) as compared to the comparison group (22 of 82) were more likely to have subsequent research publications (712 vs. 267) [Table 17] in higher impact factor journals [Table 18].

Summary:

The evaluation indicates that the ORIP-K01 (SERCA) program is helping veterinarian scientists gain research experience that allows them to participate in biomedical/translational research, hold positions in academia, actively seek research funds, and contribute to scientific knowledge by means of publications. Veterinarian scientists trained under the SERCA become important members of the workforce that contribute to the NIH mission. The statistical analysis suggests that a major contribution of the SERCA is to maintain trainees in an active role in research which resulted overall in a greater number of awarded research grants and publications. However, some other measures of success (e.g., percentage of grant applications awarded, attainment of professor-level positions) are about the same for the SERCA trainees and the comparison group. An unknown is whether the successful members of the comparison group obtained other support analogous to that provided by the SERCA.

Strengths and Limitations of the evaluation: The total population of both the SERCA and comparison group from 1983 to 2004 were used for this study since the SERCA population (n=72) and the control group (n= 82) were relatively small. In the SERCA group, 48.6% of the participants had a PhD in addition to the DVM degree as compared to 30.5% of the participants in the comparison group. This variable may influence the productivity of the two groups, but was not examined further because this would have reduced the relatively small populations to levels that could not provide meaningful conclusions. However, the results of this evaluation support the findings reported in the evaluations of the NIH Career Development Award programs conducted by Discovery Logic in 2011 and the NCI Career Development (K) Award Evaluation performed by the Center for Cancer Training, NCI in 2012 that indicate positive impact of the K program on continuation of funded research and broader scientific engagement of the awardees.

Recommendations:

1. For future evaluations of the program, improve methods to track the progress of SERCA trainees after they have finished their K01 program.
2.
 - a. Review and recommend modifications to the K01 final progress report to include a list of all publications and a list of the applications submitted for funding.
 - b. ORIP guidelines should be revised to reinforce the ability of SERCA trainees to submit R01 or other types of grant applications to NIH or other funding organizations during the last year of the SERCA award, so as to avoid gaps in funding.
3. To share the results of this evaluation and get the perspective of the veterinary scientific community regarding the significance of the K01 program, a small meeting (mini-symposium) should be held. An ideal venue will be the annual Merial-NIH Research Scholars Symposium where over 25 ORIP T32 and T35 directors, deans and associate deans, mentors and approximately four hundred veterinary students attend regularly. Attendees at this mini-symposium should be asked to provide perspectives on the importance of the program to them; and specific suggestions on how to improve it.
4. Establish the participation of the third year K01-SERCA awardees in the Burroughs Welcome annual program career development workshop as a new requirement (This workshop runs parallel to the Merial-NIH Annual Scholars Symposium and its target audience are junior investigators). This annual workshop will provide a forum for the awardees to exchange research experiences and for networking with other investigators. SERCA grantees are currently allowed a maximum of \$20,000 per year for research related expenses, including travel to scientific meetings. ORIP should provide additional funds to year 3 of the SERCA grant to facilitate attendance at this workshop. These funds should not exceed \$3,000.