



P A R K E R B . F R A N C I S
F E L L O W S H I P
P R O G R A M

JULY 2009 PBF FELLOWS SURVEY

**Data report and summary comments from: D Snapp, D Tomita and TR Martin
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Goal: The Parker B. Francis Fellowship Program had little information on the careers of the 712 MD and PhD past fellows funded over 30 years (1976-2006). Our goal was to conduct a survey of all past Parker B. Francis (PBF) Fellows with the purpose of obtaining information relevant to the productivity of the PBF Fellowship Program.

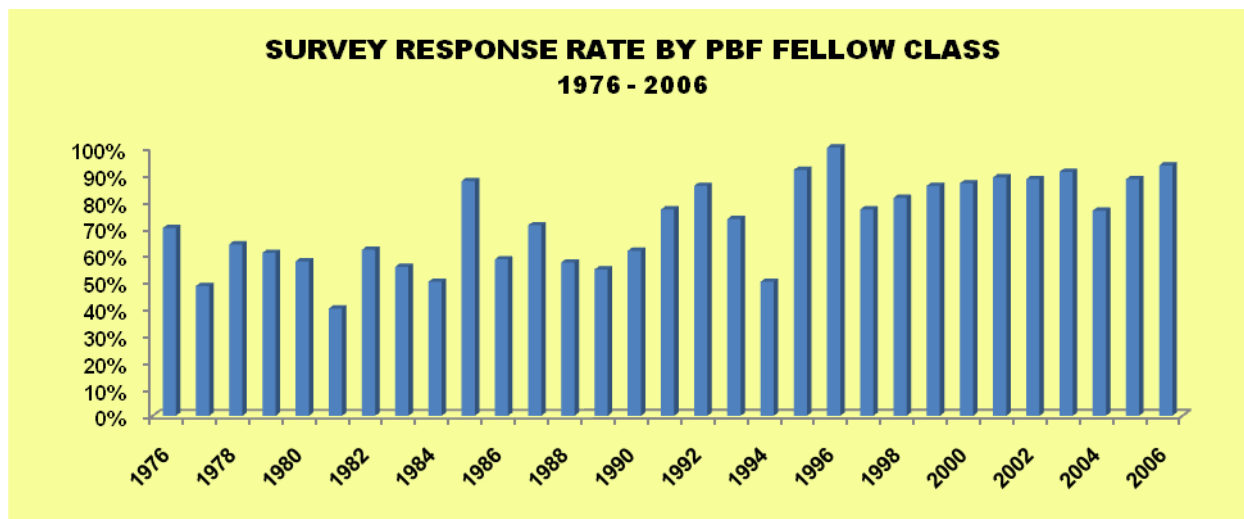
Methods: Through PBF Fellowship Program records and internet searching we obtained current email addresses for 529 (74%) of the 712 PBF Fellows who received their 3-year PBF Fellowship award in the years 1976-2006. We sent a survey to the 529 past fellows via email on July 23, 2009 and sent repeated reminder emails through October 2009. We received 365 completed surveys with attached CVs, achieving a 69% response rate. Survey questions related to determining the percentage of PBF Fellows remaining in pulmonary research, their area of research, their current title and institution, patents held, research awards received since the start of their PBF Fellowship, the number/impact of their peer-reviewed publications. From a review of each respondent's survey and CV we abstracted data on research funding, number of peer-reviewed publications, number of publications in specific high-impact journals, and we designated as "leaders" those that held leadership roles in academia (department chair or vice chair, dean or vice dean, director of major institute), health care (hospital director or chief of medicine), the pharmaceutical industry (CEO or research director) or NIH (director of division or institute). The survey and abstracted data were entered into an Access database.

Main Results: 70% of the 365 survey respondents report 25% or greater effort in research and 56% report 50% or greater effort in research. The past Parker B. Francis Fellows show productive publication and research funding records. Survey respondents reported an average of 2.7 peer-reviewed publications per year; and 1.8 peer-reviewed publications per year where the researcher is a major contributor listed as first, second or last author. The 365 respondents reported a total of 1,875 publications in selected high-impact peer-reviewed journals and more than \$1.8B direct research dollars awarded since the start of their PBF Fellowship. An initial summary report on the data collected from the 365 survey respondents from the 1976–2006 PBF Fellow Classes follows.

Survey Methods: We were able to obtain current email addresses for 529 (74%) of the 712 past PBF Fellows. We sent a survey to the 529 past fellows via email as an attached Word document on July 23, 2009 and sent repeated reminder emails through October 2009. The email reminders were sent every 2-3 weeks. We requested that the respondents return their survey along with a current CV as email attachments. We received a response rate of 69% (365 surveys). Almost all respondents sent complete surveys and CVs as requested. When data for a respondent was incomplete, we sent follow-up emails and/or conducted PubMed searches for publication data.

Survey questions related to determining the percentage of PBF Fellows remaining in pulmonary research, their area of research, their current title and institution, patents held, research awards received since the start of their PBF Fellowship, the number/impact of their peer-reviewed publications.

Response Rates: Our survey response rate by PBF Fellow Class is shown in the Figure and Table below.



| Fellow Class | funded fellows | surveys sent* | surveys rec'd | Fellow Class | funded fellows | surveys sent* | surveys rec'd | Fellow Class | funded fellows | surveys sent* | surveys rec'd |
|--------------|----------------|---------------|---------------|--------------|----------------|---------------|---------------|---------------|----------------|---------------|---------------|
| 1976 | 16 | 10 | 7 | 1987 | 18 | 14 | 10 | 1998 | 17 | 16 | 13 |
| 1977 | 52 | 31 | 15 | 1988 | 18 | 14 | 8 | 1999 | 15 | 14 | 12 |
| 1978 | 49 | 36 | 23 | 1991 | 14 | 11 | 6 | 2000 | 16 | 15 | 13 |
| 1979 | 55 | 28 | 17 | 1992 | 16 | 13 | 8 | 2001 | 18 | 18 | 16 |
| 1980 | 50 | 33 | 19 | 1991 | 16 | 13 | 10 | 2002 | 18 | 17 | 15 |
| 1981 | 48 | 30 | 12 | 1992 | 18 | 14 | 12 | 2003 | 14 | 11 | 10 |
| 1982 | 41 | 21 | 13 | 1993 | 17 | 15 | 11 | 2004 | 17 | 17 | 13 |
| 1983 | 30 | 27 | 15 | 1994 | 14 | 12 | 6 | 2005 | 17 | 17 | 15 |
| 1984 | 18 | 10 | 5 | 1995 | 15 | 12 | 11 | 2006 | 15 | 15 | 14 |
| 1985 | 13 | 8 | 7 | 1996 | 15 | 12 | 12 | TOTALS | 712 | 529 | 365 |
| 1986 | 18 | 12 | 7 | 1997 | 14 | 13 | 10 | | | (74%) | (69%) |

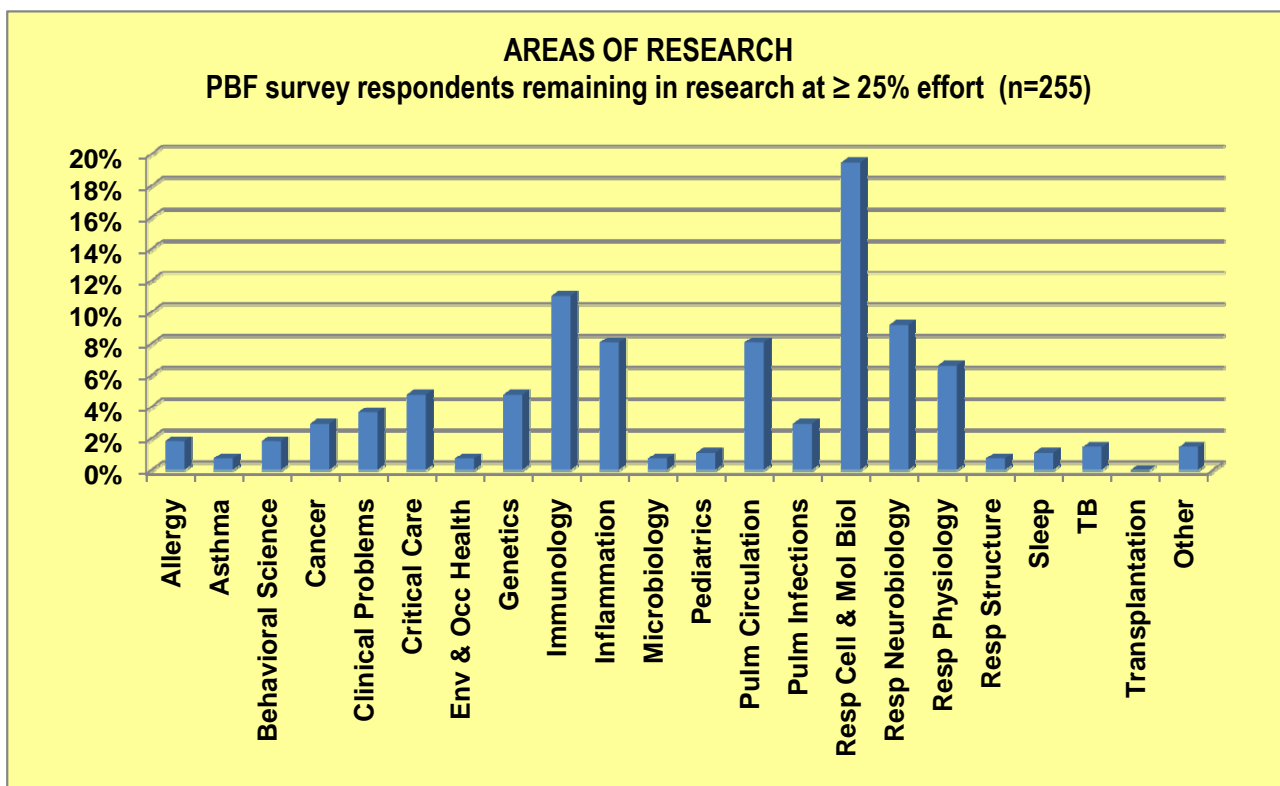
**70% of 1976-2006 PBF FELLOWS RESPONDING TO OUR SURVEY
REMAIN IN RESEARCH AT ≥ 25% EFFORT**

Our survey of past PBF Fellows shows a remarkable record of retention in research, significantly greater than that found in the full pool of MDs and PhDs who have completed fellowships in medical research. A June 2008 report by the Association of American Medical Colleges states that the percent of faculty leaving academic medicine ranges from 36-44%, varying by degree, MD or PhD, and specialty (AAMC 2008;8:4). From the 365 1976 -2006 PBF Fellows returning surveys, 255 (70%) report spending 25% or more time in research. Data on degrees held, gender, type of research, and areas of research for this group follows.

1976-2006 Past PBF Fellow survey respondents remaining in research at ≥ 25% effort (n=255)

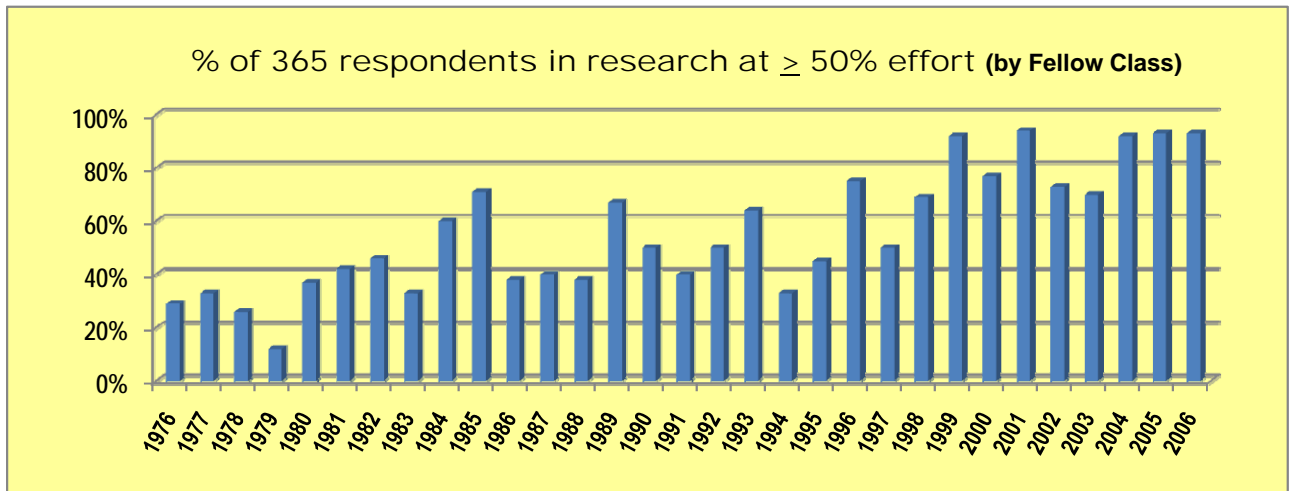
| <i>Degree(s)</i> | <i>number</i> | <i>male</i> |
|------------------|---------------|-------------|
| MD + MD,PhD | 129 (51%) | 98 (72%) |
| PhD | 126 (49%) | 96 (71%) |

| <i>Type of Research</i> | <i>MD + MD, PhD</i> | <i>PhD</i> |
|-------------------------|-------------------------|------------|
| Basic | 49 | 100 |
| Clinical | 27 | 2 |
| Translational | 53 | 24 |



PBF FELLOWS WITH LARGE RESEARCH PROGRAMS

Fifty-six percent (n=203) of the 1976-2006 PBF Fellows responding to our survey show large research programs, demonstrated by 50% or greater effort devoted strictly to funded research. The percentage by fellow year is shown in the graph below.



PATENTS, LEADERS AND PBF MENTORS

The 365 1976-2006 PBF Fellows responding to our survey reported 212 patents. We designated 83 of the 365 respondents as "leaders"; those that held leadership roles in academia (dept chair or vice chair, dean or vice dean, director of major institute), health care (hospital director or chief of medicine), the pharmaceutical industry (CEO or research director) or NIH (director of division or institute).* Thirty-six of the respondents have served as PBF Mentors. These data are shown below by fellow class.

| Fellow Year | # of survey respondents | # of patents | # of leaders (see above*) | # of PBF Mentors |
|---------------|-------------------------|--------------|---------------------------|------------------|
| 1976 | 7 | 1 | 4 | 1 |
| 1977 | 15 | 8 | 4 | 2 |
| 1978 | 23 | 7 | 8 | 0 |
| 1979 | 17 | 6 | 5 | 2 |
| 1980 | 19 | 11 | 5 | 2 |
| 1981 | 12 | 7 | 4 | 0 |
| 1982 | 13 | 2 | 7 | 2 |
| 1983 | 15 | 19 | 8 | 0 |
| 1984 | 5 | 13 | 2 | 2 |
| 1985 | 7 | 0 | 3 | 1 |
| 1986 | 7 | 0 | 3 | 0 |
| 1987 | 10 | 1 | 5 | 1 |
| 1988 | 8 | 3 | 3 | 2 |
| 1989 | 6 | 9 | 4 | 1 |
| 1990 | 8 | 1 | 3 | 1 |
| 1991 | 10 | 3 | 3 | 3 |
| 1992 | 12 | 11 | 2 | 2 |
| 1993 | 11 | 6 | 1 | 2 |
| 1994 | 6 | 2 | 1 | 2 |
| 1995 | 11 | 40 | 4 | 5 |
| 1996 | 12 | 3 | 0 | 1 |
| 1997 | 10 | 19 | 3 | 1 |
| 1998 | 13 | 2 | 0 | 1 |
| 1999 | 12 | 12 | 1 | 0 |
| 2000 | 13 | 13 | 0 | 1 |
| 2001 | 16 | 5 | 0 | 0 |
| 2002 | 15 | 2 | 0 | 1 |
| 2003 | 10 | 1 | 0 | 0 |
| 2004 | 13 | 2 | 0 | 0 |
| 2005 | 15 | 0 | 0 | 0 |
| 2006 | 14 | 3 | 0 | 0 |
| TOTALS | 365 | 212 | 83 | 36 |

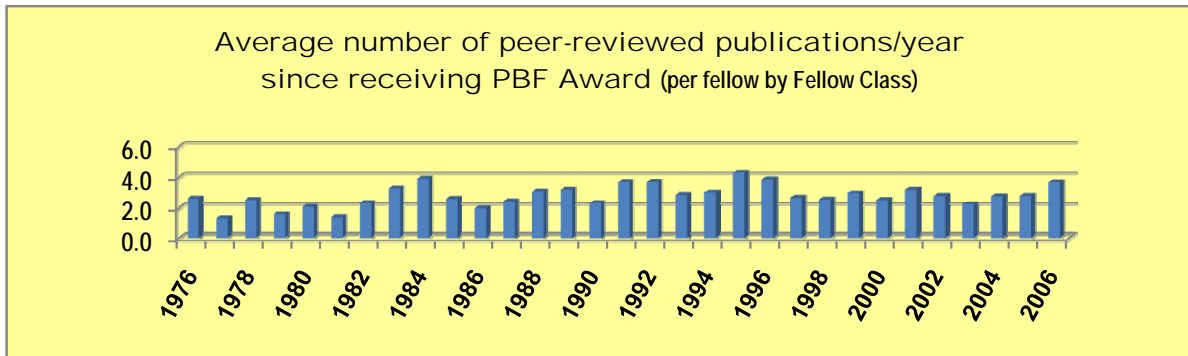
RESEARCH RETURN ON INVESTMENT

Survey data on research funding was abstracted from each respondent's survey and CV. In cases where research dollars for specific awards were not given, we used average award dollars (e.g., \$125,000 for a K award, \$50,000-\$100,000 for other career development awards, \$250,000 for a recent R01 award, \$1.5M for a PPG award). Our data shows the 365 respondents from the 1976-2006 PBF Fellow Classes have been awarded more than \$1.8B direct research dollars since the start of their PBF Fellowship. The PBF Award dollars for these 365 respondents is estimated at \$29.8M.

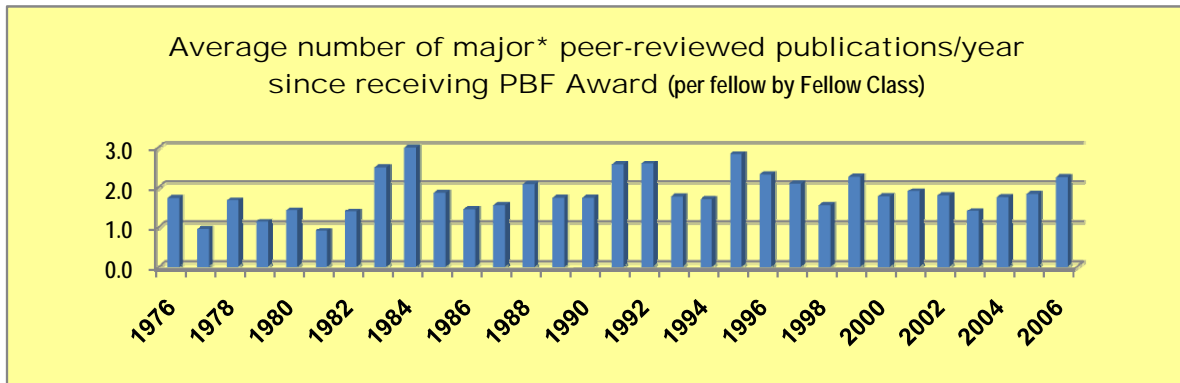
| Fellow Year | # surveys returned | PBF \$\$ awarded to survey respondents | Direct research \$\$ rec'd after PBF Award | Research ROI (multiplier) |
|---------------|--------------------|--|--|---------------------------|
| 1976 | 7 | \$180,849 | \$50,306,500 | 278 |
| 1977 | 15 | \$387,533 | \$48,989,600 | 126 |
| 1978 | 23 | \$594,217 | \$223,000,900 | 375 |
| 1979 | 17 | \$439,204 | \$46,037,800 | 105 |
| 1980 | 19 | \$490,875 | \$238,449,600 | 486 |
| 1981 | 12 | \$310,026 | \$56,799,625 | 183 |
| 1982 | 13 | \$335,862 | \$194,132,300 | 578 |
| 1983 | 15 | \$387,533 | \$75,384,800 | 195 |
| 1984 | 5 | \$123,150 | \$46,116,400 | 374 |
| 1985 | 7 | \$176,953 | \$22,424,700 | 127 |
| 1986 | 7 | \$672,000 | \$32,705,000 | 49 |
| 1987 | 10 | \$960,000 | \$46,713,710 | 49 |
| 1988 | 8 | \$768,000 | \$67,536,700 | 88 |
| 1989 | 6 | \$612,000 | \$43,241,930 | 71 |
| 1990 | 8 | \$816,000 | \$47,242,546 | 58 |
| 1991 | 10 | \$1,020,000 | \$44,032,800 | 43 |
| 1992 | 12 | \$1,296,000 | \$43,419,400 | 34 |
| 1993 | 11 | \$1,188,000 | \$48,635,200 | 41 |
| 1994 | 6 | \$648,000 | \$24,720,850 | 38 |
| 1995 | 11 | \$1,188,000 | \$95,456,100 | 80 |
| 1996 | 12 | \$1,296,000 | \$41,552,700 | 32 |
| 1997 | 10 | \$1,080,000 | \$37,416,950 | 35 |
| 1998 | 13 | \$1,404,000 | \$46,769,395 | 33 |
| 1999 | 12 | \$1,440,000 | \$70,070,150 | 49 |
| 2000 | 13 | \$1,560,000 | \$38,349,000 | 25 |
| 2001 | 16 | \$1,920,000 | \$33,929,000 | 18 |
| 2002 | 15 | \$1,800,000 | \$61,238,800 | 34 |
| 2003 | 10 | \$1,200,000 | \$13,643,500 | 11 |
| 2004 | 13 | \$1,638,000 | \$17,750,300 | 11 |
| 2005 | 15 | \$1,980,000 | \$11,198,000 | 6 |
| 2006 | 14 | \$1,932,000 | \$8,832,400 | 5 |
| TOTALS | 365 | <u>\$29,844,202</u> | <u>\$1,876,096,656</u> | |

PEER-REVIEWED PUBLICATIONS SINCE START OF PBF FELLOWSHIP

A study of junior faculty in pediatric, pulmonary and critical care medicine reported that junior faculty members published on average 1.5 articles per year (Ingbar, et al. AJRCCM 2006). The publication productivity for the PBF Fellows responding to our survey is well above this reported average.



The Ingbar 2006 study of junior faculty in pediatric, pulmonary, and critical care medicine also reported an **average of < 1 major peer-reviewed publication/yr**, where the researcher is a major contributor listed as first, second, or last author (Ingbar et al., AJRCCM 2006). Our survey respondents' productivity for major* peer-reviewed publications as first, second or last author is shown below.



PEER-REVIEWED PUBLICATIONS IN PREMIER JOURNALS

The 365 1976-2006 PBF Fellows responding to our survey reported 1,875 peer-reviewed publications in the premier medical journals shown in the graphs below.

Number of peer-reviewed publications reported by 365 1976-2006 PBF Fellows

