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## Fifth Triennial Toxicology Salary Survey

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The 2001 Triennial Toxicology Salary Survey was conducted as a joint project by the American College of Toxicology and the Society of Toxicology. In addition to the two parent organizations, 20 others (the Teratology Society, the Association of Government Toxicologists, and 17\* regional chapters of the Society of Toxicology) supported the effort by providing mailing labels for their membership.

A total of 5,826 survey instruments were distributed in June/July, with 114 of these eventually being returned as undeliverable, making the effective mailing 5,712. As of December 31, 2,459 responses had been received, for a response rate of 43%. This is comparable to the response rates for 1988 (Gad, 1989), 1991 (Gad, 1992) 1995 (Gad, 1996) and 1998(Gad, 1999). The survey instrument was a modification of that used in the previous four surveys, with the major change being an expansion of response categories for the upper end of the salary and bonus ranges. It should be noted that there continues to be a significant increase in the number of individuals reporting six-figure incomes and in those receiving significant sums as bonuses, as is reflected particularly in Tables 1 and 4. Survey methodology employed conformed to standard procedures (Rossi et al, 1983), though the response rate for this survey remains high for such endeavors.

A total of 1,711 of the respondents (1,229 men and 484 women) were full-time employed holders of doctoral degrees in the U.S. and Canada out of a total adjusted mailing of 3,312 for this doctoral degree group (for a 51.5% response rate). Table 1 presents the mean salaries ( $\pm$  one standard deviation) for these individuals, sorted by years of experience after receipt of their degrees, sex, and field of employment. Salaries are in thousands of U.S. dollars per year.

The mean salaries ( $\pm$  1 SD) for the 154 master's-level respondents are presented in Table 2. Likewise, the results from the 180 bachelor's-level respondents are presented in Table 3. The remaining respondents were not employed full-time during the reporting period and are characterized as follows:

Only three associates level responses were received, all from contract laboratory employment

\*Two regionals used email to distribute surveys and for member responses. As expected (based on feedback in the 1998 survey), response rates for these were lower than for other regionals.

**Table 1. 2001 Doctoral-Level Salaries**

Employer	Sex	Number of respondents	Years experience post-terminal degree					
			0-1	1-3	3-5	5-10	10-20	20+
Consumer product	M	50	-	75	85	83 (75-95)	118.6 (95-150)	155.1 (100-200)
	F	23	-	-	85	88.3 (75-105)	90 (59-105)	126 (115-140)
Pharmaceutical industry	M	287	-	75 (65-85)	82.5 (75-95)	98.9 (85-109)	120.5 (106-140)	150.3 (117-180)
	F	98	-	75 (65-85)	78.3 (75-85)	101.6 (85-120)	114.4 (89-135)	123.3 (87-150)

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Consultants	M	65	-	65	95	89 (75-105)	96 (85-115)	117 (65-148)
	F	30	45	65	72.5 (65-77)	87.5 (65-105)	102.9 (78-133)	111.7 (105-115)
Consultants (self-employed)*	M	66	-	-	-	-	193 (115-300)	178 (20-500+)
	F	26	-	-	-	133	154 (65-350)	217.5 (20-400+)
Chemical industry	M	111	65	65	80 (75-85)	91.7 (77-124)	103.5 (84-121)	120.8 (108-145)
	F	50	65	75 (65-85)	85	82.2 (67-94)	99.3 (86-114)	107 (95-115)
Contract research	M	133	45 (35-55)	50 (35-75)	81 (65-105)	83.6 (76-115)	96.9 (78-120)	125.7 (95-150)
	F	47	55 (35-60)	57 (37-73)	-	76.7 (55-95)	88.6 (75-97)	115.7 (90-119)
Academic	M	268	35	37.5 (27-39)	38.5 (35-45)	66 (37-87)	83.7 (66-107)	111.7 (88-140)
	F	106	45	41.6 (35-55)	49 (45-55)	55.7 (37-73)	75.8 (56-107)	82.9 (38-119)
State/local government	M	58	-	-	70	65 (55-85)	77.2 (67-89)	84.2 (74-98)
	F	17	-	45	20	65 (55-75)	72.5 (55-85)	78.3 (65-87)
Federal government	M	136	-	55	60 (55-65)	68.3 (57-76)	79.5 (74-97)	95.9 (86-114)
	F	61	-	37.5 (35-45)	65 (55-75)	63.3 (55-75)	80.6 (67-98)	102.6 (87-117)
Petrochemical	M	14	-	-	-	-	108 (95-126)	115 (90-135)
	F	3	-	-	-	-	115 (95-135)	-
Others	M	39	-	55	60 (55-65)	88 (65-105)	128 (95-155)	131 (105-170)
	F	14	-	75	55 (45-70)	70 (55-85)	101.7 (75-115)	135 9115-160)

*Note:* Salaries are in thousands of U.S. dollars: mean (range for  $\pm$  1 SD). In 24/49 cases, male salaries were higher than females-even split..

\* Two subpopulations are apparent here (above and below \$100K). Ranges are presented for these instead of SD.

**Table 2. 2001 Master's-level salaries**

Employer	Sex	Number of respondents	Years experience post-terminal degree					
			0-1	1-3	3-5	5-10	10-20	20+
Consumer product	M	6	-	-	-	70 (65-75)	-	101.7 (95-105)
	F	9	45	65	65	60 (55-65)	75	85
Pharmaceutical industry	M	29	-	-	50 (45-55)	60 (55-65)	77.1 (75-105)	75 (65-85)
	F	22	20	55	-	75 (65-85)	92.5 (77-105)	95 (65-125)
Consultants	M	18	-	35	65 (55-75)	-	98.7 (67-115)	98.8 (75-140)
	F	26	-	-	45	65 (45-75)	87 (67-115)	50 (35-65)
Chemical industry	M	19	-	65	60 (55-65)	-	108 (95-115)	107.5 (85-130)
	F	7	-	-	65	65	85 (55-115)	95
Contract research	M	7	-	-	-	-	106.6 (75-122)	60 (45-75)
	F	16	-	45	55	54 (54-65)	65 (45-75)	115
Academic	M	1	20	-	-	-	-	-
	F	9	20	25	25	28 (15-35)	-	-
State/local government	M	1	-	-	-	45	-	-
	F	9	-	35	-	35	60.2 (55-65)	75 (65-85)
Federal government	M	12	-	50 (45-55)	-	55	65 (55-75)	75 (65-85)
	F	12	-	45	50 (45-55)	45	79.9 (69-95)	75
Others	M	6	-	-	65	35 (25-45)	65	117 (75-160)
	F	10	25	-	60 (55-65)	65	75 (55-95)	105

Note: Salaries are in thousands of U.S. dollars; mean (range for  $\pm 1$  SD).

**Table 3. 2001 Bachelor's-level salaries**

Employer	Sex	Number of Respondents	Years experience post-terminal degree					
			0-1	1-3	3-5	5-10	10-20	20+
Consumer product	M	2	40	-	-	-	-	-
	F	4	25	-	45	-	70 (65-75)	-
Pharmaceutical industry	M	23	-	-	45 (35-55)	55(45-65)	70 (65-75)	83.3 (65-95)
	F	49	35	47 (45-55)	50 (45-55)	57.5 (45-65)	65 (45-75)	82.5 (65-105)
Consultants	M	1	-	-	-	-	-	130
	F	7	-	-	-	45	70 (65-75)	110 (95-135)
Chemical industry	M	7	-	-	-	60 (55-65)	-	87 (75-105)
	F	11	35	-	-	-	65 (55-75)	80 (55-95)
Contract research	M	31	35 (25-45)	30 (25-35)	-	35	57.8 (45-65)	68 (55-85)
	F	16	-	35	-	45 (35-55)	50 (25-75)	68.3 (65-75)
Academic	M	4	22.5 (20-30)	25	-	-	-	-
	F	11	20 (15-25)	20	-	28.3 (15-35)	-	-
State/local government	M	-	-	-	-	-	-	-
	F	4	25	-	-	-	-	-
Federal government	M	4	-	25	-	35	-	95
	F	-	-	-	-	-	-	-
Others	M	7	40 (35-45)	25	45 (35-55)	-	-	90 (85-95)
	F	-	-	-	-	-	-	-

Note: Salaries are in thousands of U.S. dollars: mean (range for  $\pm$  1 SD).

**Table 4. 2001 Doctoral-level bonuses**

Employer	Sex	Number of recipients <sup>a</sup>	Years experience post-terminal degree					
			0-1	1-3	3-5	5-10	10-20	20+
Consumer product	M	42 — 84%	-	-	2	9.5 (2.9-20)	39.2 (2.5-155)	73.6 (2.5-150)
	F	16 — 70%	-	-	2	8 (5-11)	17 (4-25)	34 (12-50)
Pharmaceutical industry	M	278 — 96%	-	3.8 (.8-10)	9 (1-15)	10.8 (2.5-30)	28 (1.5-150)	38.4 (6-147)
	F	96 — 98%	-	5.2 (1.5-9)	5.3 (1-15)	14.9 (3.5-64)	15.5 (1-70)	15.7 (4-36.5)
Consultants (employees)	M	36 — 55%	-	-	10	15.7 (.5-40)	8.9 (.6-30)	34.2 (9-90)
	F	22 — 73%	-	-	2.7 (1.5-3)	7 (2-14)	5.2 (1-10)	10
Chemical industry	M	68 — 61%	5	2	6.5 (4-9)	9.7 (2-18.7)	14 (.8-33)	27.9 (2-300)
	F	<b>36 — 72%</b>	-	4.5	2.7 (1.9-4)	9.5 (4-15)	8.2 (1.8-16)	10 (3-20)
Contract research	M	68 — 51%	-	-	1.6 (.7-2.5)	7.8 (4.5-10)	10.8 (2.5-25)	31.7 (1.7-150)
	F	17 — 36%	-	4	5	3.3 (1.5-5)	5.3 (2-9)	16 (2-30)
Academic	M	19 — 7%	-	.1	.2	-	4.6 (.6-8)	10.3 (.5-30)
	F	2 — 2%	-	-	-	-	-	9 (8-10)
State/local government	M	3 — 5%	-	-	-	-	2 (1-3)	1
	F	1 — 6%	-	-	-	-	-	10
Federal government	M	25 — 18%	-	1.5	-	2.0	1.9 (.6-3.6)	4.5 (.4-25)
	F	8 — 13%	-	-	-	0.8 (.5-1.1)	7.5 (6-9)	1.9 (1-3)
Others	M	25 — 64%	-	-	-	2.6	33.4 (3-100)	38.7 (10-125)
	F	8 — 57%	-	-	-	-	25.2 (2.5-43)	11.2 (3.5-20)

Note: Bonuses are in thousands of U.S. dollars: mean (range for  $\pm$  1 SD).

<sup>a</sup> Receiving bonuses/total (%).**Table 5. Geographic distribution of employed doctoral respondents**

State	Number of respondents	State	Number of respondents
Alabama	5	New Hampshire	2
Alaska	-	New Jersey	138
Arkansas	13	New Mexico	11
Arizona	9	Nevada	6
California	149	New York	75
Colorado	24	North Carolina	173
Connecticut	36	North Dakota	5
District of Columbia	43	Ohio	101
Delaware	27	Oklahoma	8
Florida	28	Oregon	11
Georgia	16	Pennsylvania	82
Idaho	1	Puerto Rico	1
Illinois	88	Rhode Island	-
Indiana	36	South Carolina	2
Iowa	6	South Dakota	1
Kansas	16	Tennessee	17
Kentucky	16	Texas	61
Louisiana	13	Utah	5
Maine	8	Virginia	46

Maryland	105	Washington	33
Massachusetts	35	Wisconsin	24
Michigan	91	West Virginia	9
Minnesota	30	Wyoming	1
Missouri	7	Canada	33
Mississippi	5	Not reported	54
Nebraska	5		

**Table 6. Society affiliations of doctoral respondents**

Professional society	Number of national members responding
Society of Toxicology	1353
American College of Toxicology	463
Teratology Society	205
Society of Environmental Toxicology and Chemistry	96
Environmental Mutagen Society	88
American Chemical Society	78
SRA, ASSX, AACR, STP, ACVP, AVMA, ASPET, AAAS, DABT, AACC, SFN, ACGIS, SFT, SSR, ASM, AIHA, APS, ABT, SNS, Sigma Xi, NBTS, APHA, BTS, AAASOT, AAARTA, AAI, DIA, AGT, NCSOT, Eurotox, AALAS, RAPS, ASCB, FASEB, ABVT, ASBMB, AAVCT, ISRTP, ACGH, AAA, ES, AFS, IST, SOTC, ASTM, SON, ASN, ACLAM, SOTP, SOFT, ESA, ASP, RSA, ASCP, SQA, EB, MTA, BPS, ASSE, IFT, AAIH, NYAS, SIVB, GEMS, AACT, GTA, ISPT, AHA, ABIH, AMA, SPB, AACP, SID, MISOT, SPS, AIN, NTS, ASVCP	fewer than 75 employees

**Table 7. Recipients of doctoral degrees (and survey respondents) in toxicology by year**

Year	Graduates	Survey years post-degree/respondents
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1981		20 + / 733
1982		10-20/ 586
1983	60	
1984	97	
1985	98	
1986	104	
1987	115	
1988	111	
1989	91	
1990	86	
1991	104	
1992	99	5-10/254
1993	94	
1994	87	
1995	84	
1996	86	
1997	82	3-5/ 80
1998	80	
1999	80	1-3/ 64
2000	78	
2001	73	0-1/ 25

**Table 8. Geographic comparison: doctoral-level salaries**

			Years experience post-terminal degree
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State	Sex	Number of respondents	0-1	1-3	3-5	5-10	10-20	20 +
California	M	98	-	75	75	106 (85-122)	110 (85-150)	122.3 (87-170)
	F	51	-	45 (35-55)	85 (75-125)	101.2 (75-125)	106 (95-120)	117.5 (85-180)
Illinois	M	63	55	70 (55-85)	90 (75-125)	91 (75-105)	118 (85-150)	-
	F	25	-	-	75	75	95 (75-150)	106 (85-200)
Maryland	M	69	-	60 (55-65)	50 (35-65)	85	88.3 (75-105)	106.4 (85-127)
	F	36	-	58 (45-65)	65	57 (45-65)	93.6 (65-135)	123 (85-200)
Michigan	M	66	45	-	85	85 (75-105)	110 (55-138)	128.4 (107-155)
	F	25	-	-	80 (75-85)	110 (90-130)	97.6 (75-148)	65 (55-75)
North Carolina	M	109	-	47 (35-65)	85	81.4 (65-85)	103.7 (77-135)	120 (75-125)
	F	64	35	55 (45-75)	65 (55-85)	73.8 (55-85)	87 (65-95)	99.4 (105-118)
New Jersey	M	96	-	-	105	83 (65-95)	115 (95-145)	139.7 (105-145)
	F	42	35	-	80 (65-85)	85 (67-105)	107 (95-125)	107 (95-115)
Ohio	M	69	-	70 (65-75)	-	87.8 (75-95)	105 (77-125)	123.5 (85-145)
	F	32	-	75	85	75 (55-95)	89 (75-105)	105.5 (65-137)

Note: Salaries are in thousands of U.S. dollars: mean (range for  $\pm 1$  SD).

**Table 9. Certification and doctoral salaries**

Years of experience	Overall	With certification		Without certification	
		M	F	M	F

0-1	0/1	-	45	56.4	46.2
1-3	5/6	67.8	72.5	67.8	68.4
3-5	14/5	74.5	68.3	69	64.2
5-10	86/56	93.9	126	85.8	82.4
10-20	241/85	122.5	98.3	102.8	92
20+	379/50	125.4	113	122.4	96.3
Respondents		716	223	514	254

**Table 10. Self-employed consultants: years so employed**

Years self-employed	Respondents	
	Males	Females
1	6	1
2	3	3
3	3	-
4	1	3
5	6	2
5-10	11	3
10-15	7	1
15+	7	-

Working part-time 118  
 Unemployed 38  
 Retired 147  
 Postdoctoral 74

There were also 3 associate degree respondents.

Table 4 presents a summary of data on those 655 (41% of all employed) doctoral recipients who received bonuses in addition to salary. Table 5 presents a summary of the geographic distribution of

the doctoral-level survey respondents. Table 6 summarizes the major professional society memberships of the respondents. Many respondents belong to more than one society. Table 7 summarizes, according to the National Research Council (NRC), the numbers of individuals who have received their doctorates in toxicology since 1983 (the first year that the degree was included in the NRC annual summary) (National Research Council, 1999). Also included is a summary of the number of doctoral respondents by years post-degree. Table 8 provides a summary analysis of the influence of geographic location of place of employment on salaries for doctoral-level employees. Table 9 provides a summary of the influence of certification (either American Board of Toxicology or Academy of Toxicologic Sciences) on doctoral and master's-level salaries.

## ***Discussion and Conclusions***

The 2001 survey results point to a number of different trends that deserve attention. First, although the situation has clearly improved for most entry-level and early-career positions, women continue to be compensated at a lower level than their male counterparts. Secondly, salaries as a whole have increased in the field, but the most impressive differences are not by geographic location of place of employment, but rather by type of employer. Finally, certification continues to play a significant positive role in compensation.

It is interesting that the results for toxicologists in the 2001 AAPS salary survey (which appeared just as this article was finalized—AAPS 2001) are consistent with the results reported here.

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