

## JOB MARKET SURVEY: PAST, PRESENT AND THE FUTURE

*This survey is being conducted to identify areas of growth and contraction, and training needed by candidates, in the toxicology job market over the future. We hope that this information will be helpful to toxicology job applicants and educators. Thank you for your assistance.*

*The SOT Placement Committee*

1. What category best describes your organization? (Check the most appropriate.)

- |                                     |  |
|-------------------------------------|--|
| <input type="checkbox"/> Academia   | <input type="checkbox"/> Government                                |
| <input type="checkbox"/> Consulting | <input type="checkbox"/> Non Profit or Not-for-Profit Organization |
| <input type="checkbox"/> Industry   | <input type="checkbox"/> Other _____                               |

(Specify)

If you selected Industry, please specify the category that best describes your business.

(Check one.)

- |  |
|--|
| <input type="checkbox"/> Chemical              |
| <input type="checkbox"/> Consumer-Use Products |
| <input type="checkbox"/> Food                  |
| <input type="checkbox"/> Pharmaceutical        |
| <input type="checkbox"/> Other _____           |

(Specify)

2. With respect to the total job effort spent on toxicology activities within your organization, what is the approximate distribution of primary responsibilities of toxicologists in your organization? (Show by percentage; may total less than 100 %.)

- |         |                                |
|---------|--------------------------------|
| _____ % | Conduct toxicological research |
| _____ % | Conduct toxicology testing     |
| _____ % | Provide consultation           |
| _____ % | Teaching                       |
| _____ % | Don't know                     |

3. Please indicate the total number and breakdown of toxicologists in your organization.

(Do not include toxicologists hired from consulting companies.) Total number

Breakdown:

- |       |   |
|-------|---|
| _____ | Full-time doctoral-degree or equivalent                             |
| _____ | Temporary doctoral-degree (i.e post-doctoral fellows or equivalent) |
| _____ | Part-time doctoral-degree or equivalent                             |
| _____ | Full-time master or bachelor-degree                                 |

4. For the specific job-types listed below that apply to your organization, please indicate your view on the change in number of positions for doctoral-degree (or equivalent) toxicologists within the specified time-frames.

(Circle increase or decrease and indicate your estimated NUMBER of positions; enter 0 for no change.)

	<u>1990 - 1995</u>	<u>1996 - 2000</u>
Academics (Research & Teaching)	Increase/Decrease ____ #	Increase/Decrease ____ #
Clinical .....	Increase/Decrease ____ #	Increase/Decrease ____ #
Consulting .....	Increase/Decrease ____ #	Increase/Decrease ____ #
Environmental .....	Increase/Decrease ____ #	Increase/Decrease ____ #
Forensic .....	Increase/Decrease ____ #	Increase/Decrease ____ #
Laboratory Director .....	Increase/Decrease ____ #	Increase/Decrease ____ #
Management/Administration .....	Increase/Decrease ____ #	Increase/Decrease ____ #
Post-Doctoral .....	Increase/Decrease ____ #	Increase/Decrease ____ #
Product Development .....	Increase/Decrease ____ #	Increase/Decrease ____ #
Product Safety .....	Increase/Decrease ____ #	Increase/Decrease ____ #
Quality Assurance .....	Increase/Decrease ____ #	Increase/Decrease ____ #
Regulatory .....	Increase/Decrease ____ #	Increase/Decrease ____ #
Research .....	Increase/Decrease ____ #	Increase/Decrease ____ #
Risk Assessment .....	Increase/Decrease ____ #	Increase/Decrease ____ #
Sales/Marketing/Business Development .....	Increase/Decrease ____ #	Increase/Decrease ____ #
Study Director .....	Increase/Decrease ____ #	Increase/Decrease ____ #
Teaching .....	Increase/Decrease ____ #	Increase/Decrease ____ #
Trade Association .....	Increase/Decrease ____ #	Increase/Decrease ____ #
Uncertain/Can't Determine .....	Increase/Decrease ____ #	Increase/Decrease ____ #
Other _____		
	(Specify)	

If new, unfilled positions were identified in question #4 (an increase of positions in 1996-2000), go to question # 5. If not, go to question # 11.

5. Estimate by percentage the types of individuals that you expect your organization to recruit in the future.

- \_\_\_\_% General toxicologists
- \_\_\_\_% Toxicologists with specialized training
- \_\_\_\_% Scientists trained in specialized areas with a general awareness of toxicology

6. In evaluating applicants for the new position(s) identified above, rate the importance of their completing a post-doctoral fellowship. (check one.)

- \_\_\_\_ Absolute requirement
- \_\_\_\_ Desirable, but not required
- \_\_\_\_ Not a significant consideration
- \_\_\_\_ Post-doctoral fellowship regarded as a negative factor

7. In evaluating applicants for the new position(s) identified, rate the importance of certification in the following areas: American Board of Toxicology (DABT), Academy of Toxicological Sciences (ATS), American Board of Applied Toxicology (ABAT) for each certification.)

Certification	Absolute Requirement	Desirable, but Not Required	Not a Significant Consideration	Regarded as a Negative Factor
DABT	_____	_____	_____	_____
ATS	_____	_____	_____	_____
ABAT	_____	_____	_____	_____
Other _____ (Specify)	_____	_____	_____	_____

8. For future new positions in your organization, what experience in a given discipline of toxicology will be required (check column "R") and what type of cross-training (check column "C") would be useful?

R	C		R	C	
_____	_____	Aquatic Toxicology	_____	_____	Pathology
_____	_____	Biochemistry	_____	_____	Pharmacology
_____	_____	Human/Clinical Tox.	_____	_____	Physiology
_____	_____	Insect Toxicology	_____	_____	Primate Toxicology
_____	_____	In Vitro Toxicology	_____	_____	Rodent Toxicology
_____	_____	Large Animal Toxicology	_____	_____	Whole Animal Studies
_____	_____	Microbiology	_____	_____	Wildlife Toxicology
_____	_____	Molecular Biology	_____	_____	Other
_____ (Specify)					

9. What specialized scientific training will be needed for the new position(s) identified? (Check all that apply.)

_____ Anatomy	_____ Inhalation/Pulmonary Toxicity
_____ Behavioral Toxicity	_____ Mechanisms
_____ Biochemical Toxicity	_____ Metabolism
_____ Cardiovascular Toxicity	_____ Nephrotoxicity
_____ Chronic Toxicity & Carcinogenicity	_____ Neurotoxicity
_____ Dermatotoxicity	_____ Occupational Health/Industrial Hygiene
_____ Developmental Toxicity	_____ Ocular Toxicity
_____ Dose Response Modeling	_____ Process Safety/Industrial Toxicity
_____ Environmental Toxicity	_____ Product/Food Safety
_____ Epidemiology	_____ Public Health
_____ Gastrointestinal Toxicity	_____ Reproductive Toxicity
_____ Genotoxicity	_____ Risk Assessment
_____ Hematotoxicity	_____ Statistics
_____ Hepatotoxicity	_____ Toxicokinetics/Disposition
_____ Immunotoxicity	_____ Other
_____ (Specify)	

10. Which scientific support skills are needed for the new position(s) identified?  
(Check all that apply.)

- |                          |                           |                          |                                  |
|--------------------------|---------------------------|--------------------------|----------------------------------|
| <input type="checkbox"/> | Analytical Chemistry      | <input type="checkbox"/> | Project Management               |
| <input type="checkbox"/> | Cell Culture              | <input type="checkbox"/> | Quality Assurance                |
| <input type="checkbox"/> | Computers                 | <input type="checkbox"/> | Radioisotopes                    |
| <input type="checkbox"/> | Contract Negotiation      | <input type="checkbox"/> | Report Writing                   |
| <input type="checkbox"/> | Electron Microscopy       | <input type="checkbox"/> | Regulatory Submissions           |
| <input type="checkbox"/> | Foreign Language(s)       | <input type="checkbox"/> | Statistics                       |
| <input type="checkbox"/> | Forensic                  | <input type="checkbox"/> | Staff Supervision and Management |
| <input type="checkbox"/> | Good Clinical Practices   | <input type="checkbox"/> | Study Director                   |
| <input type="checkbox"/> | Good Laboratory Practices | <input type="checkbox"/> | Teaching                         |
| <input type="checkbox"/> | Grant Writing             | <input type="checkbox"/> | Technical Writing                |
| <input type="checkbox"/> | Histopathology/Pathology  | <input type="checkbox"/> | Other                            |
| <input type="checkbox"/> | Laboratory Animal Science | <input type="checkbox"/> | Other                            |
| <input type="checkbox"/> | Laboratory Management     | <input type="checkbox"/> | Other                            |
| <input type="checkbox"/> | Presentations             | <input type="checkbox"/> | (Specify)                        |

11. Has your organization filled a toxicologist position (or a position requiring significant knowledge of toxicology) in the last 5 years?

- Yes If yes, go to question # 12.  
 No If no, proceed to last page, question # 15.

12. Rank the top 3 recruitment tools that have been most effective in your organization for filling toxicology positions?

- SOT Placement Center  
 Other Professional Society Postings/Placement Services  
 Recruiting Professional Assistance (Specify)  
 Advertising  
 Networking/Word-of-Mouth (Specify)  
 Other (Specify)

13. Based on your recent experiences in interviewing and hiring candidates for toxicology positions, please characterize their overall knowledge and skills as Excellent (E), Satisfactory (S), Poor (P), Don't Know (DK), or Not Applicable (N/A).

General Skills	E	S	P	DK	N/A
Ability to critique studies/reports effectively	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Computer competency	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Foreign Languages	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Grant Writing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Information Retrieval	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interpersonal skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
People Management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Presentation skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Project Managements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Verbal communication skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Written communication skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other _____ (Specify)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

13. (Continued) Excellent (E), Satisfactory (S), Poor (P), Don't Know (DK), or Not Applicable (N/A)

Basic Knowledge Areas	E	S	P	DK	N/A
Anatomy/Pathology	_____	_____	_____	_____	_____
Analytical Chemistry	_____	_____	_____	_____	_____
Biochemistry	_____	_____	_____	_____	_____
Experimental Design	_____	_____	_____	_____	_____
Molecular Biology	_____	_____	_____	_____	_____
Physiology	_____	_____	_____	_____	_____
Statistical Analysis	_____	_____	_____	_____	_____
Toxicology: Agent Specific Toxicity	_____	_____	_____	_____	_____
Toxicology: Current Issues & Contro.	_____	_____	_____	_____	_____
Toxicology: Eco/Environmental Toxicity	_____	_____	_____	_____	_____
Toxicology: General Principles	_____	_____	_____	_____	_____
Toxicology: Regulatory	_____	_____	_____	_____	_____
Other _____ (Specify)	_____	_____	_____	_____	_____

Specialized Knowledge Areas:	E	S	P	DK	N/A
Cell/Tissue Culture	_____	_____	_____	_____	_____
Good Clinical Practices (GCPs)	_____	_____	_____	_____	_____
Good Laboratory Practices (GLPs)	_____	_____	_____	_____	_____
New Research Techniques	_____	_____	_____	_____	_____
Risk Assessment	_____	_____	_____	_____	_____
Standard Testing Protocols	_____	_____	_____	_____	_____
Toxicokinetics	_____	_____	_____	_____	_____
Xenobiotic Metabolism	_____	_____	_____	_____	_____
Other _____ (Specify)	_____	_____	_____	_____	_____

14. Has your company had difficulty filling a specific type of toxicological position in the last 12 months?

\_\_\_\_\_ No  
 \_\_\_\_\_ Yes

If yes, describe the position:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

If possible, please indicate the reason(s) why this position was difficult to fill. (Check all that apply.)

\_\_\_\_\_ Qualified candidate not identified

\_\_\_\_\_ Job location

\_\_\_\_\_ Salary

\_\_\_\_\_ Other \_\_\_\_\_

\_\_\_\_\_ Other \_\_\_\_\_  
(Specify)

Did you eventually fill the position?

\_\_\_\_\_ Yes, with a qualified toxicologist.

\_\_\_\_\_ Yes, with a less qualified toxicologist.

\_\_\_\_\_ Yes, with a candidate from an allied field (non-toxicologist).

\_\_\_\_\_ No.

15. Optional. If you wish to receive a copy of the survey results, you may provide your name, address, and telephone number and/or any additional comments relating to this survey.

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

Telephone \_\_\_\_\_ Fax \_\_\_\_\_

Comments (Attach additional pages if desired.)

Please return survey to: Society of Toxicology  
1821 Michael Faraday Drive, Suite 300  
Reston, VA 20190-5348  
Fax: 703-438-3113