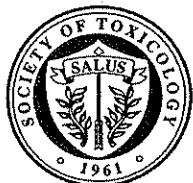


# Immunotoxicology

## Specialty Section Newsletter



**2000 - 2001**

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*The Immunotoxicology Specialty Section Newsletter* is published 3 times/year (May, August and November) in both printed and electronic formats. If you would like to share a book review, meeting report, interesting web site or any other item of interest with members of the Specialty Section, please send it to us by the middle of the month preceding the planned publication date. All comments on, or suggestions for, the newsletter are welcome.

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### President's Message

by Dori Germolec

2001 is the Society of Toxicology's 40th anniversary and many special events are being planned to celebrate this milestone. A number of us are already working to make the 2001 meeting in San Francisco scientifically and socially stimulating for those of you in Immunotoxicology. One thing that has been missing is input from you. I was hoping to hear from more of you with comments and suggestions regarding both the programs and Specialty Section reception/business meeting, but my email ([germolec@niehs.nih.gov](mailto:germolec@niehs.nih.gov)) and phone (919-541-3230) have been lamentably quiet. The Specialty Section officers were elected to represent and serve your interests, but we cannot do this without feedback from you.

Last year Judy made a valiant effort to hold the annual reception off-site. These efforts were hampered by a variety of factors, the most important being liability and insurance issues. Other concerns include limited access if we hold the meeting away from the conference site, and financing. As you are all well aware, in the last several years, the meeting rooms that we have been assigned have been woefully small, which limits the interactions

people can have. I am willing to try and organize an off-site meeting, but I need to hear what the membership wants. San Francisco presents many options for an offsite meeting (museums, harbor cruises, microbreweries, and Fisherman's Wharf to name a few), so let me have feedback from you. Would you be willing to attend a function away from the meeting hotel, and if so, what type of event would you support?

And while I am asking for your input, let me put in a plug for several of our committee chairs, and remind you that we are looking for nominees for next year's officers and awards (see details in Liz Sikorski's column below) and program submissions for the 2002 meeting. Nominations for officers and for the Career Achievement Award should be made to any member of the Nominating committee, which consists of myself, Judith Zelikoff, Kathleen Rodgers, Scott Burchiel and Robert House. Nominations for the Best Paper and Young Investigator Awards should go to Liz Sikorski. Program submissions should be directed to Robert House.

Hope to hear from all of you soon!

## MEETING ANNOUNCEMENT

### *Pre-clinical Safety Evaluation of Vaccines: Current Experience, New Adjuvants and Future Challenges*

This meeting is co-organized by the European Agency for the Evaluation of Medicinal Products (EMEA) and the Biotechnology Speciality Section of the British Toxicology Society (BTS), and has also received the scientific support of WHO, EUROTOX-ITCASS, EFPIA/EVM (European Vaccine Manufacturers) & French Society of Toxicology.

#### MEETING OBJECTIVE

An appropriate pre-clinical safety assessment adapted to the various types of vaccines is desirable. The scope of this meeting will focus on the pre-clinical safety experience gathered with vaccines and the practical aspects related to the implementation of CPMP recommendations and to the development of innovative vaccines.

Availability and relevance of pre-clinical models will be addressed for rapidly evolving fields such as new vaccines and new adjuvants.

#### WHO SHOULD ATTEND

This will be an interactive meeting intended for experts in the area of vaccines and preclinical development especially from Regulatory compliance, Toxicology, and Immunology. Due to the space limitations at the seminar facility and the meeting format, registrations will be limited to 60 participants and will be processed on a first come basis and consideration of the number of representatives per company.

#### FORMAT

Several presentations will be given by EU experts from academia, EU regulatory authorities and industry together with interactive discussions for each session.

#### DISCUSSION

To ensure all relevant topics related to preclinical safety assessment are open for discussion, the attendees are invited to formulate questions from their experience. A questionnaire and registration forms are available from either François Verdier at Fax: +33 (0)4 3737 9436 or e-mail: [francois.verdier@aventis.com](mailto:francois.verdier@aventis.com), or from Pilar Cucalon at Fax: +44 (0)207 418 8545 or e-mail: [pilar.cucalon@emea.eudra.org](mailto:pilar.cucalon@emea.eudra.org). For further enquiries, please contact one of the above individuals.

## **SPECIAL ISSUE OF HUMAN AND EXPERIMENTAL THERAPEUTICS PUBLISHED**

The April 2000 issue of *HET* (Volume 19, Number 4) is entitled *Safety Evaluation of Immunomodulatory*

*Biopharmaceuticals: Can We Improve the Predictive Value of Preclinical Studies?* This issue is the proceedings from a meeting by the same name, held September 23-24, 1999 in Bethesda, MD. The proceedings include an overview of the workshop, summaries of the round table discussions, and ten submitted papers (both reviews and research reports) on a wide variety of topics related to preclinical safety assessment of biologicals and immunomodulators.

## STUDENT REPRESENTATIVE REPORT

*Submitted by Susan McKarns*

As your student representative, it is my goal this year to continue to improve upon our student/post-doc membership, involvement, and accomplishments over past years. Towards this end, it is critical that we invite all applicable students and postdoctoral fellows to participate. Thus, if any new students and/or post-docs have joined your lab and are interested in becoming a member of the student/post-doc activities, please forward their e-mail address to me at [mckarns@msu.edu](mailto:mckarns@msu.edu), and I will be in contact with them. Furthermore, while we hope to expand upon our 1999 student activities, if anyone has additional suggestions to promote and enhance student member participation in the national organization, please feel free to contact me via e-mail: [mckarns@pilot.msu.edu](mailto:mckarns@pilot.msu.edu).

I am particularly interested in positions and duties that our students/pos-docs may fulfill at the national or satellite SOT meetings which will provide them with valuable experience and excellent visibility for our Specialty Section. Collectively, as a student body, we have established an excellent network amongst our fellow student colleagues over this past year, and it is my primary objective for this upcoming year to further enhance this network and camaraderie. I am always open for any and all comments, suggestions, and constructive criticism. Lastly, I am looking forward to a very exciting and productive year, and as your student representative, if there is anything that I can do to assist you in promoting our Specialty Section through student participation, please do not hesitate to ask.

## AWARDS COMMITTEE REPORT

Submitted by Liz Sikorski

For the year 2000-2001, the Awards Committee is composed of Jeanine Bussiere, Mitch Cohen, Ian Kimber, Mike McCabe, Leigh Ann Naas, Jean Regal, Kathy Rodgers, K.P. Singh and Elizabeth Sikorski (Chair). The available awards in the Immunotoxicology Specialty Section for 2000-2001 are: Career Achievement; Outstanding Young Investigator; Best Presentation by a Post-doctoral fellow; Best Presentation by a Graduate Student; and Best Paper of the Year Award in an SOT journal. The Nominating Committee (President, last three Past Presidents, and Vice President-Elect) judges the Career Achievement Award. The Awards Committee judges the Best Presentation by a Post-doctoral Fellow and the Best Presentation by a Graduate Student awards. The Councilors judge the Young Investigator and Best Paper of the Year in an SOT journal.

Last year was the first year for the Career Achievement, Outstanding Young Investigator and Best Paper of the Year Award in an SOT journal. Last year's winners were: Career Achievement - Jack Dean, Ph.D., Outstanding Young Investigator - Michael McCabe, Ph.D., Best Presentation by a Graduate Student - Susan McKarns. The Best Paper of the Year in an SOT Journal was authored by W. Dong, P. Simenova, R. Galluci, J. Matheson, L. Flood, S. Wang, A. Hubbs and M. Luster and appeared in *Toxicology and Applied Pharmacology* 151(2):359.

It was entitled "Toxic metals stimulate inflammatory cytokines in hepatocytes through oxidative stress mechanisms." Last year no submissions were received for Best Presentation by Post-doctoral Fellow.

Below is a description of the various awards that will be presented at SOT 2001, as well as the requirements for the awards and the deadlines for submission. Please take some time to look over the available awards and nominate those individuals that you feel are most deserving of recognition for their contributions to the field of Immunotoxicology!

### ACHIEVEMENT AWARD

An engraved plaque will be awarded to a Senior Investigator whose body of work represents an outstanding achievement in Immunotoxicology. The nominator should provide a discussion of the role that the individual's work has played in advancing the field of Immunotoxicology. A *curriculum vitae* and bibliography should also be included. A second letter of recommendation from another investigator in the field would be helpful. Nominations of candidates not receiving the award will be considered for two additional years unless the nomination is withdrawn by the sponsor. Final decisions will be made by the Nominating Committee. Please send your nominations to Dr. Dori Germolec, NIEHS, Environmental Immunology, PO Box 12233, Research Triangle Park, NC 27709 (T) 919-541-3230, (F) 919-541-0870, E-mail: [germolec@niehs.nih.gov](mailto:germolec@niehs.nih.gov). The deadline for submission is December 1, 2000.

### BEST PAPER OF THE YEAR IN AN SOT JOURNAL AWARD

An engraved plaque will be awarded to the author(s) of the best paper in the area of Immunotoxicology, published either in *Toxicological Sciences* or *Toxicology and Applied Pharmacology* between July 1, 1999 and June 30, 2000. The nomination should provide a full citation of the paper and a short discussion of the value of the research to the field of Immunotoxicology. Decisions will be made by the Specialty Section Councilors. Thus, please send your nominations to Dr. Elizabeth E. Sikorski, The Procter & Gamble Company, Miami Valley Laboratories, PO Box 538707, Cincinnati, OH 45253 (T) 513-627-1360, (F) 513-627-1612, E-mail: [sikorski.ee@pg.com](mailto:sikorski.ee@pg.com). The deadline for submission is December 1, 2000.

### OUTSTANDING YOUNG INVESTIGATOR AWARD

An engraved plaque will be awarded to a scientist who has made significant contributions to the field of Immunotoxicology. The recipient must have less than 10 years of experience since obtaining his/her highest earned degree at the time when the award is presented. The nomination should summarize the contributions of the candidate scientist and should include a *curriculum vitae* and a bibliography. Decisions will be made by the Specialty Section Councilors. Please send your nominations to Dr. Elizabeth E. Sikorski. The deadline for submission is December 1, 2000.

*continued on page 4 . . .*

## Awards Committee Report

*...continued from page 3*

### BEST PRESENTATION BY A GRADUATE STUDENT AND BEST PRESENTATION BY A POST-DOCTORAL FELLOW

The award requirements are submission of a complete written version (including all graphs and tables) of an Immunotoxicology presentation to be made at the SOT 2001 meeting. This presentation is to be accompanied by a Letter of Nomination from the Student's or Post-doctoral Fellow's advisor. Electronic submissions are strongly encouraged. No manuscripts will be accepted. Please send your submissions directly to the Dr. Elizabeth E. Sikorski. Winners will receive a plaque and cash award (generally \$250.00). The deadline for submission is February 15, 2001.

## PROGRAM COMMITTEE REPORT

*Submitted by MaryJane Selgrade*

The SOT Program Committee met in May and tentatively accepted the following submissions for the 2001 meeting:

### FOUR SYMPOSIA:

- Unraveling a Mystery: New Insights into the Molecular Mechanism(s) Responsible for TCDD-induced Immunotoxicity
- Molecular Mechanisms of Xenobiotic-Induced Autoimmunity
- The Developing Immune System: A Sensitive Target for Perturbation by Xenobiotics
- Environmental Influences on the Development and Severity of Allergic Asthma

### ONE WORKSHOP:

Unique Challenges in the Safety Assessment of Human Immunotherapeutics.

### TWO CONTINUING EDUCATION COURSES:

- Food Allergy and Intolerance
- Exposure Assessment: Methods and Applications for Wildlife Populations

In addition, Scott Lovelace is planning to organize a **Poster Discussion** session on "New Methods for Identifying Chemicals that are Respiratory Allergens." This requires that abstracts for this session be submitted as a package in October. If you are planning to submit an abstract that fits in this category, please let Scott know ASAP. Poster Discussion sessions run between 8 and 13 posters. We would like to encourage anyone else who has an idea about a poster discussion session to poll the specialty session (Mitch Cohen can help you do this) and put something together.

October 1 is the deadline for abstracts submitted electronically for the 2001 meeting. This year the deadline for hard copy submissions is earlier (September 15) and the submission fee is higher than for electronic submissions (\$50 versus \$30). The intent is to encourage electronic submissions. If you submit electronically, I recommend that you not wait until the last minute. Last year the system was overwhelmed at the end. SOT has a new vendor to handle the electronic submissions this year, but there still could be problems. When you are putting together your abstracts for the October deadline, please consider checking **Platform**. SOT will not put someone in a platform session unless that box is checked. So few people do this

that it is hard to put together a cohesive platform session. SOT will put people in poster sessions who have checked platform. If this happens to you, don't be offended. It just means there weren't enough platform submissions related to yours to put together a reasonable session. Ultimately it's the membership that's responsible for the quality of the program. We're looking forward to seeing everyone's work presented in San Francisco, March 25-29, 2001.

Finally, it is not too soon to begin to think about submissions for the 2002 meeting in Nashville. If you have an idea for a program and can think of a couple of speakers, but can't think of others, float the idea over the immunotoxicology list server and ask if there is anyone who has ideas to add and would like to co-chair. SOT really likes to have co-chairs from different organizations, and it provides an excellent way for you to get to know other investigators and explore common interests. If you have an idea that may interest another specialty section contact the president of that section (they are listed in the directory) or a colleague in that section and ask who might be available to work with you on it. The program committee likes to see jointly sponsored programs. If you would like to have a mentor then seek out someone who has done this before and ask them to work with you. I really encourage people who have not done this before to give it a try. Robert House will be chairing the program committee for the 2002 meeting. I hope the membership will provide as many program submissions to Robert as they provided for the 2001 meeting. Again, thanks for making my job easy.

**Save this list and use it as a handy check-sheet  
when shopping at your local library**

**Recent Immunotoxicology Publications**

**MODELS AND TECHNIQUES**

Adachi, T. et al. (2000). Rat extracorporeal circulation model for evaluation of systemic immunotoxicity. *Toxicol. Lett.* 115(1):63-70.

Jones, R.D. et al. (2000). Capture ELISA and flow cytometry methods for toxicologic assessment following immunization and cyclophosphamide challenges in beagles. *Toxicol. Lett.* 115(1):33-44.

**VARIOUS CHEMICALS, DRUGS, ET AL.**

Casalinuovo, I.A. et al. (2000). Cytokine pattern secretion by murine spleen cells after inactivated *Candida albicans* immunization. Effect of cocaine and morphine treatment. *Immunopharmacol. Immunotoxicol.* 22(1):35-48.

Cha, S.W. et al. (2000). Immunotoxicity of ethyl carbamate in female BALB/c mice: role of esterase and cytochrome P450. *Toxicol. Lett.* 115(3):173-181.

Colic, M. and Savic, M. (2000). Garlic extracts stimulate proliferation of rat lymphocytes in vitro by increasing IL-2 and IL-4 production. *Immunopharmacol. Immunotoxicol.* 22(1):163-181.

Dearman, R.J. et al. (2000). Characterization in mice of the immunological properties of five allergenic acid anhydrides. *J. Appl. Toxicol.* 20(3):221-230.

Fimiani, V. et al. (2000). Immunomodulatory effect of the homoeopathic drug Engystol-N on some activities of isolated human leukocytes and in whole blood. *Immunopharmacol. Immunotoxicol.* 22(1):103-115.

Fujimaki, H. et al. (2000). Induction of apoptosis in mouse thymocytes by cadmium. *Toxicol. Lett.* 115(2):99-105.

House, R.V. and McCormick, D.L. (2000). Modulation of natural killer cell function after exposure to 60 Hz magnetic fields: confirmation of the effect in mature B6C3F1 mice. *Radiat. Res.* 153(5 Pt 2):722-724.

Johnson, V.J. et al. (2000). Increased production of proinflammatory cytokines by murine macrophages following oral exposure to sodium selenite but not to seleno-L-methionine. *Arch. Environ. Contam. Toxicol.* 39(2):243-250.

Kao, S.T. et al. (2000). Effect of San-Ao-Tang on immediate and late airway response and leukocyte infiltration in asthmatic guinea pigs. *Immunopharmacol. Immunotoxicol.* 22(1):143-162.

Perez-Fernandez, M.E. et al. (2000). Effect of exopolysaccharide V2-7, isolated from *Halomonas eurihalina*, on the proliferation in vitro of human peripheral blood lymphocytes. *Immunopharmacol. Immunotoxicol.* 22(1):131-141.

Pyatt, D.W. et al. (2000). Hydroquinone inhibits PMA-induced activation of NFkappaB in primary human CD19+ B lymphocytes. *Cell Biol. Toxicol.* 16(1):41-51.

Sarasua, S.M. et al. (2000). Serum immunoglobulins and lymphocyte subset distributions in children and adults living in communities assessed for lead and cadmium exposure. *J. Toxicol. Environ. Health.* 60(1):1-15.

Tulinska, J. et al. (2000). Immunotoxicity of ethyl-4-isothiocyanatobutanoate in male Wistar rats. *Toxicology* 145(2-3):217-225.

Watson, V.A. et al. (2000). In vivo cytokine production and resistance to infection after acute exposure to 3,4-dichloropropionaniline. *J. Toxicol. Environ. Health.* 60(6):391-406.

**NON-MAMMALIAN SYSTEMS**

Bernhoft, A. et al. (2000). Possible immunotoxic effects of organochlorines in polar bears (*Ursus maritimus*) at Svalbard. *J. Toxicol. Environ. Health.* 59(7):561-574.

Fatima, M. et al. (2000). Pollutant-induced over-activation of phagocytes is concomitantly associated with peroxidative damage in fish tissues. *Aquatic Toxicol.* 49(4):243-250.

**REVIEWS AND OVERVIEWS**

Bondy, G.S. and Pestka, J.J. (2000). Immunomodulation by fungal toxins. *J. Toxicol. Environ. Health B Crit. Rev.* 3(2):109-143.

Descotes, J. et al. (2000). Responses of the immune system to injury. *Toxicol. Pathol.* 28(3):479-481.

Hinton, D.M. (2000). US FDA "Redbook II" immunotoxicity testing guidelines and research in immunotoxicity evaluations of food chemicals and new food proteins. *Toxicol. Pathol.* 28(3):467-478.

Holladay, S.D. and Smialowicz, R.J. (2000) Development of the murine and human immune system: differential effects of immunotoxicants depend on time of exposure. *Environ. Health Perspect.* 108 Suppl 3:463-473.

Huby, R.D. et al. (2000). Why are some proteins allergens? *Toxicol. Sci.* 55(2):235-246.

Kuper, C.F. et al. (2000). Histopathologic approaches to detect changes indicative of immunotoxicity. *Toxicol. Pathol.* 28(3):454-466.

Munson, A.E. and Phillips, K.E. (2000). Natural killer cells and immunotoxicology. *Methods Mol. Biol.* 121:359-365.

#### **DIOXIN!**

Neubert, R. et al. (2000). Chlorinated dibenzo-p-dioxins and dibenzofurans and the human immune system: 3. Plasma immunoglobulins and cytokines of workers with quantified moderately-increased body burdens. *Life Sci.* 66(22):2123-2142.

Thurmond, T.S. et al. (2000). The aryl hydrocarbon receptor has a role in the in vivo maturation of murine bone marrow B lymphocytes and their response to 2,3,7,8-tetrachlorodibenzo-p-dioxin. *Toxicol. Appl. Pharmacol.* 165(3):227-236.

#### **POPLITEAL LYMPH NODE ASSAY**

Choquet-Kastylevsky, G. et al. (2000). Increased production of interferon-gamma, but not IL-4 mRNA, by streptozotocin in the popliteal lymph node assay. *J. Appl. Toxicol.* 20(3):175-178.

Choquet-Kastylevsky, G. et al. (2000). The popliteal lymph node response to streptozotocin is under type 1, MHC class-I restricted, CD8(+) T-cell control. *Toxicology* 146(1):73-82.

Suda, A. et al. (2000). Differentiation of responses to allergenic and irritant compounds in mouse popliteal lymph node assay. *J. Toxicol. Sci.* 25(2):131-136.

#### **LLNA**

Baskettter, D.A. et al. (2000). Use of the local lymph node assay for the estimation of relative contact allergenic potency. *Contact Dermatitis* 42(6):344-348.

Gerberick, G.F. and Robinson, M.K. (2000). A skin sensitization risk assessment approach for evaluation of new ingredients and products. *Am. J. Contact Dermat.* 11(2):65-73.

Gerberick, G.F. et al. (2000). Local lymph node assay: validation assessment for regulatory purposes. *Am. J. Contact Dermat.* 11(1):3-18.

Kanikkannan, N. et al. (2000). Evaluation of skin sensitization potential of jet fuels by murine local lymph node assay. *Toxicol. Lett.* 116(1-2):165-170.

Roberts, D.W. and Baskettter, D.A. (2000). Quantitative structure-activity relationships: sulfonate esters in the local lymph node assay. *Contact Dermatitis* 42(3):154-161.

van Och, F.M. et al. (2000). A quantitative method for assessing the sensitizing potency of low molecular weight chemicals using a local lymph node assay: employment of a regression method that includes determination of the uncertainty margins. *Toxicology* 146(1):49-59.

Vandebril, R.J. et al. (2000). Assessment of preferential T-helper 1 or T-helper 2 induction by low molecular weight compounds using the local lymph node assay in conjunction with RT-PCR and ELISA for interferon-gamma and interleukin-4. *Toxicol. Appl. Pharmacol.* 162(2):77-85.

Vohr, H.W. et al. (2000). An intra-laboratory validation of the Integrated Model for the Differentiation of Skin Reactions (IMDS): discrimination between (photo)allergic and (photo)irritant skin reactions in mice. *Arch. Toxicol.* 73(10-11):501-509.

Warbrick, E.V. et al. (2000). Failure of vehicle to influence local lymph node assay response to benzocaine. *Contact Dermatitis* 42(3):164-165.

Woolheiser, M.R. et al. (2000). Comparison of mouse strains using the local lymph node assay. *Toxicology* 146(2-3):221-227.

## USEFUL REFERENCES

submitted by Dennis Hinton

Various papers from the 3rd Conference of the International Federation of Societies of Toxicologic Pathology held at St. John's College, Cambridge, England, Aug. 16-19, 1998, recently were published in the dedicated (May, 2000) issue of *Toxicologic Pathology*, vol. 28, #3. There were four areas covered in the conference: Thresholds for Genotoxic Carcinogens; Endocrine Modulators in the Environment (EPA represented by Dr. Penny Fenner-Crisp); Molecular Pathology; and Immunotoxicology. Three papers were presented in the immunotoxicity symposium: one by Jeff Vos for Frieke Kuper et al, "Histopathologic Approaches to Detect Changes of Immunotoxicity"; myself, "US FDA Redbook II Immunotoxicity Testing Guidelines and Research in Immunotoxicity Evaluations of Food Chemicals and New Food Proteins"; and last, J. Descotes et al, short article, "Responses of the Immune System to Injury."

I have some reprints available if anyone would like a copy of my publication. Kuper's and my article complement each other very well with regard to our interests in immunopathology. Hope this is of some interest.

## MEETING REPORT

Submitted by Henk van Loveren and Jeff Vos

To further advance the field of autoimmunity associated with exposure to environmental factors, an exploratory meeting, "Epidemiology of Occupational and Environmental Factors Associated with Autoimmunity", was organized in Bilthoven the Netherlands by RIVM, NIEHS, NIOSH and the London School of Tropical Medicine and Hygiene. The meeting was held May 10-12, 2000. It was concluded that there are many indications of the role of certain chemicals in the environment and in the work place in causing or exacerbating autoimmune illnesses, or in exciting autoimmune responses not always associated with a clinical disorder.

The aim of this meeting was to decide on the most adequate methodology to assess autoimmunity associated with chemical or environmental exposures in the human population, and in addition to set up collaborative epidemiologic studies of the association of exposure to hexachlorobenzene, ultraviolet radiation, silica and other agents associated with autoimmunity in the human population. The importance of studying environmental causes of autoimmune diseases and autoimmunity lies in the identification and prevention of risks to the public health, and in improving our knowledge of basic mechanisms of health and disease. It was also concluded that there is need for experimental studies in laboratory animals and for clinical

studies to enhance the scientific knowledge; in addition there is a need for an interdisciplinary approach to epidemiological studies of the environmental and other causes of these disorders in human populations. Specific designs for epidemiological studies in this context, as well as laboratory assays for health outcomes, were reviewed.

Several recommendations for an epidemiological approach to evaluate the effects of environmental agents on autoimmunity were made, the prime recommendations being 1) that systematic descriptive epidemiological data on autoimmunity and autoimmune disorders are required; 2) that the establishment of disease-reporting registries should be encouraged; 3) that the development of internationally accepted standard diagnostic criteria for all autoimmune diseases should be encouraged; 4) that the social impact of these disorders should be evaluated and estimations of direct and indirect economic costs should be made; 5) that the methods of exposure assessment used in epidemiological studies should be standardized; 6) that the methods of laboratory measurement of biological responses should be standardized; and 7) that the inclusion of parameters of autoimmunity and autoimmune diseases and for relevant environmental exposures in ongoing epidemiological studies should be encouraged.

For further information, contact Jeff Vos or Henk van Loveren at RIVM, Dori Germolec at NIEHS or Petia Simeonova at NIOSH.

## BOOK REVIEW



**Immunology: A Short Course, Fourth Edition**  
by Eli Benjamini, Richard Coico and Geoffrey Sunshine

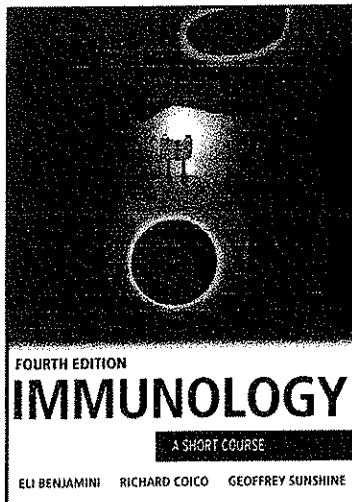
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*Reviewed by Robert House*

In a previous issue of this newsletter we reviewed the excellent book, *Fundamental Immunology*, by William Paul. It was our judgment then, and still remains, that Paul's book belongs in the library (personal or professional) of any serious immunologist. Nonetheless, many of us in the Specialty Section teach (either professionally or on an *ad hoc* basis), and quite frankly, *Fundamental Immunology* is simply too massive and detailed to serve as a useful teaching text for introductory-level students. There are many worthy candidates for such a basic text and old hands probably have their own favorites. But if you're in the market for an excellent text, you should check out *Immunology: A Short Course, Fourth Edition* (let's be comfortable and call it *ISC4*).

*ISC4* has two "hooks" that I particularly liked. First are the little pictures we usually refer to as "cartoons", the colorful and necessarily abstract diagrams that we rely on to illustrate how cells and molecules interact. In this book, they're called icons; they're all standardized, and you're given



a key right up front so that you don't have to try to figure out who the players are in each subsequent use (more on this below). At the same time, this volume is much more than pretty pictures. The book is structured along the lines we've become accustomed to: elements of the immune system; explanation of antigens and antibodies and how they interact; assays and experimental systems (including good descriptions of *in vitro* functional assays); immunogenetics; B-cell and T-cell biology; MHC; control and regulatory systems and circuits; complement; hypersensitivity (a lot) and autoimmunity (not so much). The final four chapters of the book alone would serve as a passable immunotoxicology primer: immunodeficiency; transplantation; tumor immunology; and host resistance mechanisms. Each chapter concludes with a concise summary, references, and review questions (along with the answers). The text is well-written and at an appropriate level for graduates or advanced undergraduates.

The second hook is one that I imagine will become pretty standard — the book is essentially multimedia. There is a companion

website ([www.wiley.com/immuno-shortcourse.com](http://www.wiley.com/immuno-shortcourse.com)) that the authors promise to maintain in an updated format. The website promises to use the WebCT management tool, which is designed to assist teachers who adopt the text to structure a course in an individualized manner (see [www.webtv.com](http://www.webtv.com)). The *ISC4* website is a treasure-trove of useful features, including a collection of immunology links, all the figures and tables from the book, review questions, a glossary, and a few other goodies. Now, back to the icons: the website includes a gallery of these same icons that can be downloaded individually or as a set, allowing you to create your own graphics that will look more...dare I say...professional than most of us are capable of on our own.

If you're involved in student immunology/immunotoxicology education at all, or if you just want a quick and up-to-date reference book, *ISC4* is an inexpensive, information-dense option.

## DOCUMENT AVAILABLE

*Principles and Methods for Assessing Allergic Hypersensitization Associated with Exposure to Chemicals* (The International Programme on Chemical Safety (IPCS) Environmental Health Criteria 212). Copyright 1999, World Health Organization. ISBN 92 4 157212 4, 399 pages including index.

Reviewed by  
Robert House

This document (book, actually) is a comprehensive treatment of the topic of hypersensitivity as it relates to human disease; although it contains little novel, there are very few reference books

available that have the scope and depth of coverage to be found here.

The book begins with an overview of the immune system and a description of the concept of immunotoxicology. This is pretty standard stuff, but with some excellent diagrams that you may find useful. There is also an excellent description of the concept of immunological tolerance, which is often given scant attention in straight immunology texts. This is followed by a thorough discussion on the mechanisms of hypersensitivity and autoimmunity. The Gell & Coombs classification is covered including "Type V" reactions,

such as Grave's disease), as are the various immunoregulatory circuits important in understanding hypersensitivity. In addition, the various hypotheses on etiology and mechanisms of autoimmunity are presented.

Following this introduction to basic mechanisms, a panoply of allergic and autoimmune diseases are described; this section is particularly interesting, since the roles of various drugs and chemicals in these diseases are described, along with proposed mechanisms. This section alone would make the book a worthwhile acquisition.

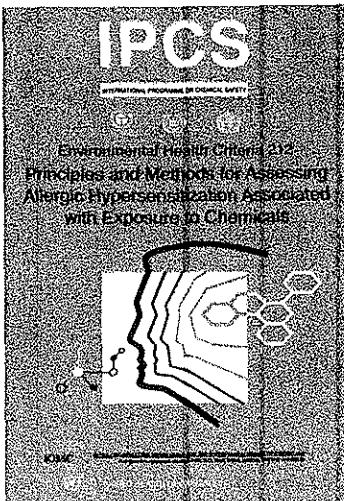
The next section elucidates the various factors that influence allergenicity such as inherent allergenicity; exogenous factors

such as magnitude, frequency, and route of exposure, the role of tobacco smoke and air pollution, and even geography; endogenous factors (genetics, underlying disease, age, diet, and gender). Again, this section contains a wealth of detail vital for comprehending this complex subject.

Section 4 is devoted to clinical aspects of the most important allergic diseases (asthma, allergic contact dermatitis, food allergy, and numerous other). Each topic is covered in detail in separate sections, making it easier to concentrate on each individual syndrome. This section of the book includes several color plates illustrating various skin condi-

tions. Section 5 covers the epidemiology of asthma and allergic disease, and sections 6 and 7 describe hazard identification and risk assessment, respectively. The book ends with a fairly complete glossary, as well as recommendations for protection of human health and future avenues of research in this area.

To obtain a copy of *Principles and Methods for Assessing Allergic Hypersensitization Associated with Exposure to Chemicals*, contact Marketing and Dissemination (MDI), World Health Organization, CH-1211 Geneva 27, Switzerland. Tel.: 41 22 791 24 76 2477, Fax: 41 22 791 4857, email bookorders@who.ch



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