

Immunotoxicology Specialty Section Newsletter



2002 - 2003 Executive Committee

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The Immunotoxicology Specialty Section Newsletter is published 3 times/year (May, August and November). 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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Typesetting provided by Brenda House.

President's Message

Robert V. House

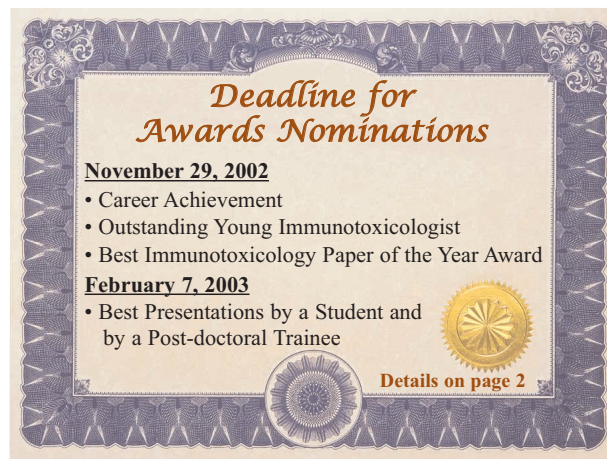
I trust that this last newsletter of 2002 finds you all in good health, and that you have had a productive year. I am happy to report that the Immunotoxicology Specialty Section continues to be one of the most active Specialty Sections within the Society of Toxicology. The presidents of the various Specialty Sections have met via telecom several times this year, with the goal of ensuring that the concerns of all our members are being represented properly at the national level. One long-standing problem that is close to being solved is the seeming constant disparity between the numbers of members each Specialty Section believes itself to have versus the values reported by national. This initiative, as well as the tireless work of our Membership and Communications committees (tip o' the hat to Paige Lawrence and Mitch Cohen), now puts us in really good financial shape. Speaking of membership, look for news very soon now concerning a newly revised membership directory.

One piece of news I wanted to pass along is that this summer I made the decision (with the concurrence of the Executive Committee) to dissolve the Methods Committee and the Education Committee. During the past several years, these committees were an important part of the Specialty Section, and the Chairmen serving on each of these committees at their time of dissolution have served us well. I would like to thank Dr. David Lawrence and Dr. George DiGeorge for their efforts, and I trust that they will continue to contribute their talents to the Specialty Section in other capacities.

Also this summer, I asked Dr. Mitch Cohen to chair an ad hoc Rules Working Group to clean up some of our "housekeeping" procedures. Although the Specialty Section is governed by a set of By-laws, there are numerous decisions that have to be made on a regular basis that are not codified in these By-laws. Mitch and his group have helped us to develop procedures that will serve as a type of institutional memory so that subsequent officers will not have to reinvent the process each year. My sincere thanks to all of them for this effort.

One exciting development is Ken Hastings' announcement in this issue of the publication of FDA CDER's immunotoxicology guidance document. As most of you are aware, this document has had a tortuous history, and I'm sure Ken is relieved to finally be able to say something besides "Any day now. Really." The publication of the guidance document,

continued on p.2...



President's message ...continued from p.1

in conjunction with the previously-published CPMP guidance and the pending Japanese guidelines, will provide a much-needed framework for designing, conducting, and interpreting immunotoxicology studies for pharmaceuticals.

Let me add my voice to Bob Luebke's plea for topics for the Program Committee. There are many great ideas for programs out there, and we really need you to pass these along. If you're willing to organize and/or chair these programs, that's great. At the very least, though, let Bob and his group know if you have interesting topics, and perhaps they can direct these ideas to other people to develop more fully.

I look forward to seeing all of you in Salt Lake City.

Awards Committee Report

Submitted by Jean Meade

Its time to start thinking about nominations for the Immunotoxicology Specialty Section awards for the Salt Lake City meeting. In recent years, the numbers of nominations for these awards has not adequately reflected the effort and scientific contributions that our members have made. Please take the time to seriously consider these awards and nominate individuals who you feel should be recognized for their contributions to the field of Immunotoxicology. The guidelines and deadlines for submissions for each award are highlighted below. Further information can be found on the Immunotoxicology Specialty Section webpage.

<http://www.toxicology.org/MemberServices/SpecSection/immunotox/Index.html>

Career Achievement Award

Deadline for submission: November 29, 2002

This award is given to a Senior Investigator whose career represents outstanding achievement in the field of Immunotoxicology. Consideration will be given to the scientific impact of the nominee's work on the field of

immunotoxicology, their role in educating and training young scientists in the field, leadership and service within the field and their influence on regulatory and risk assessment decisions related to immunotoxicology. The nominator should provide a letter of recommendation as well as the nominee's curriculum vitae and bibliography. Additional letters of recommendation from other investigators in the field are encouraged.

Please submit nominations to:

Dr. Robert House
DynPort Vaccine Company LLC
64 Thomas Johnson Drive
Frederick, MD 21702

Email: houser@dynport.com

Outstanding Young Immunotoxicologist Award

Deadline for submission: November 29, 2002

This award is given to a young investigator from academia, industry or government to recognize their impact on the field of Immunotoxicology. The recipient must have less than 15 years of experience in the field since obtaining their highest earned degree. Exceptions to the 15 year limitation will be made if careers have been interrupted for family or health reasons, clinical practice, etc. The nominator should submit a copy of the nominee's curriculum vitae and bibliography along with a letter of recommendation highlighting the nominee's contribution to the field.

Please submit nominations to:

Dr. Tom Kawabata
Pfizer Global Research & Development
Department of Drug Safety Evaluation
Eastern Point Road
MS 8274-6
Groton, CT 06340

Email:

thomas_t_kawabata@groton.pfizer.com

Best Immunotoxicology Paper of the Year Award

Deadline for submission: November 29, 2002

This award will be given to the authors

of the paper selected as the best manuscript published in the field of Immunotoxicology between July 1, 2001 and June 30, 2002. In past years this award has been limited to papers published in Toxicological Sciences or Toxicology and Applied Pharmacology and a list of eligible papers has been provided. This year nominations can include any paper published in the field of Immunotoxicology. The nominator (who should not be an author on the paper) should provide a full citation of the paper and a short discussion of the contribution of the manuscript to the field of Immunotoxicology.

Please submit nominations to:

Dr. Jean Meade
NIOSH/HELD
1095 Willowdale Road
Morgantown, WV 26505 USA

Email: bhm8@cdc.gov

Best Presentations by a Student and by a Post-doctoral Trainee Awards

Deadline for submission is February 7, 2003.

These awards will be presented to the Student/Post-doctoral trainee whose work is judged to make the most significant contribution to this year's annual SOT meeting. Applicants must submit a complete written version, including all graphs and tables, of an Immunotoxicology presentation (either poster or platform) to be made at Salt Lake City. A hard copy of the submission is required. Micro-versions (one page layout) of posters will not be accepted. If possible, the hard copy should be accompanied by an electronic version (pdf format only). The submission must also be accompanied by a letter of nomination from the trainee's advisor who must be an Immunotoxicology Specialty Section member.

Please submit nominations to:

Dr. Jean Meade
NIOSH/HELD
1095 Willowdale Road
Morgantown, WV 26505 USA

Email: bhm8@cdc.gov

Treasurer's Report

Submitted by Jean Regal

For the time period
July 1, 2001 to June 30, 2002

Income	
Corporate donations	\$1500
Dues revenue	\$4580
SOT National Contribution	\$2500
Interest	\$ 144
Total Income	\$8724
Expenses	
Annual meeting reception	\$4455
Student mixer	\$ 96
Cash awards	\$ 500
Plaques and certificates	\$ 463
Newsletter production	\$ 300
Total Expenses	\$5814

CARRYOVER to 2002/2003 \$2910

Notes on income:

SOT will no longer be contributing \$2500 to Specialty Section budgets as they did this past year. The dues revenue for 01/02 reflects payment by 126 full and 40 associate members (\$25 each) plus 39 student members (\$15 each). The numbers don't always work out exactly because some of those dues payments for that time period were received after June 30, 2002, so they will appear as income for the next budget year. In addition, some students pay in error and some full and associate members only pay \$15. Paying your dues on time and before December 31 makes it easier to track income for the year.

Notes on expenses:

As you can see the biggest expense is the annual meeting reception. This past year, the reception was arranged for 150 people at \$15 per person, with food added on. By the time taxes and service charges are added (26%) and the charge for the bartender, podium and microphone are added in, the

grand total of \$4455 is easily reached. The cash awards are for the Best Presentations by Students and Post-doctoral Trainees. Brenda House continues to produce our newsletter at an extremely generous, better than bargain price (Thank you Brenda!!).

BOTTOM LINE:

We're doing good. We have enough money to operate this year without added dollars from SOT National. The new dues structure (See the Membership Committee report) is projected to give us more money than last year. We will see how the new system works. SOT National is being very helpful in assisting the Specialty Sections in projecting expenses and income so we don't overspend. The most important thing you can do is **PAY YOUR IMMUNOTOXICOLOGY SPECIALTY SECTION DUES** on time.

Student Representative

Submitted by L. Peyton Myers

Fostering networks between established researchers and students is an integral part of a student's career. Last year, Immunotoxicology Specialty Section members helped foster these relationships by taking time out of the SOT national meeting for a dinner with students/post-docs after the Immunotoxicology Specialty Section general membership meeting. Since the feedback was very positive from last year, we would like to continue this tradition with another student/researcher

dinner for the upcoming meeting. The dinner can work well for both students and researchers. Students get contacts for future post-doctoral opportunities and jobs, while researchers get a chance to meet their future colleagues. If any researcher is interested in participating in the dinners, please email

LMyers@LSUHSC.edu to add your name to the list.



Also, we would like to plan a mixer for students/post-docs at the upcoming meeting. Last year we experienced a scheduling conflict. SOT National planned a student function at the same time as the mixer. We will do our best this year to avoid scheduling conflicts and plan for a mixer at the beginning of the SOT meeting.

This is a very important function since it allows students to mingle before the meeting starts and get to know each other on a more personal level. We have a list of people from last year that were active as students. If anyone has new students in their labs, who are interested in meeting other Immunotoxicology Specialty Section students, please email me and the students will be contacted.

See you in

Salt Lake City

**Immunotoxicology Specialty
Section Reception
Monday night, March 10, 2003**

Be there!

Membership Committee Report

Submitted by Paige Lawrence

SOT Council Approves Change in Fee Structure. SOT Council has created a new structure for Specialty Section membership dues and registration fees for the annual meeting. Specialty Section dues will be *reduced* to \$15 per Specialty Section (it is now \$25). Students will continue to receive one free Specialty Section membership per year. The goal of this price reduction is to encourage membership in Specialty Sections.

To ensure no shortfall in revenue, annual meeting registration fees will be *increased* by \$10 for regular members, \$20 for non-members, and \$5 for student members. To be clear, this rate change will be charged to all SOT meeting attendees.

Specialty Section dues directly benefit the Specialty Section, and this will not change with the new dues structure. Under the existing dues structure, for every \$25 dues payment made to SOT, the Specialty Section receives \$25 from SOT. With the new dues structure, the Specialty Section will now receive \$15 for every SOT member who joins the Specialty Section. In addition, SOT will kick in a portion of the revenue from the meeting registration fees. Specifically, the additional registration fee monies will be divided up among the Specialty Sections, based on how many of a particular Specialty Section's members attend the annual meeting. People who belong to multiple sections will have their fee monies divided up equally among the sections to which they belong.

This change is good news for the Specialty Sections because SOT projections indicate that this new fee structure will result in more money going to the Specialty Sections than under the current system. The lower dues should make it a bit easier on the

pocket without compromising our ability to provide awards and a reception at the annual meeting. This new policy will go into effect with the dues renewal at the end of the year.

Please take the time to renew your membership in both SOT and the Immunotoxicology Specialty Section.

If you have concerns or ideas, please feel free to share them with us. If you are moving, please send us your new email address and contact information. The current roster for the Membership Committee and our email addresses are as follows:

B. Paige Lawrence, Ph.D. (chair)
bp1@wsu.edu

T. Scott Thurmond, Ph.D.
Scott.Thurmond@cfsan.fda.gov

Marsha Ward, Ph.D.
ward.marsha@epa.gov

Program Committee Report

Submitted by Bob Luebke

At the risk of sounding like a broken record, the Immunotoxicology Specialty Section Program Committee is making the usual plea for our members to submit program suggestions. The quality of future SOT meetings, and the level of interest that the meeting holds for you, is dependent on a cross section of our membership participating in planning the scientific sessions. Those of us employed by government regulatory agencies and by industry may tend to have our thought process dominated by regulatory issues, but it is important that basic immunotoxicology is well represented in the scientific program. Besides, basic cutting edge science can be a lot more exciting than some of the regulatory issues that pay the bills. Younger members are particularly encouraged to participate in planning and organizing sessions. Do not let a lack of experience deter you from submitting program ideas, because the Program Committee will help pair inexperienced

individuals with a more experienced co-chair if desired. As a reminder, the Program Committee will meet at the 2003 SOT meeting to discuss items for the 2004 scientific program; those items will be presented to the Executive Committee for approval and then submitted to the SOT Program Committee for consideration. Note that program suggestions can be submitted directly to the SOT Program Committee, without endorsement by a specialty section. However, specialty section endorsements do carry weight with SOT, and co-sponsorship by other specialty sections can make a difference in whether a suggestion is approved. If you have an idea for one of the program categories, please send it to Bob Luebke (Luebke.robert@epa.gov), whether it is a fully fleshed out program complete with a list of speakers, or simply a topic for a future meeting.

If you are interested in submitting a proposal for a Continuing Education session, I have an Excel spreadsheet listing CE courses from 1990-2003. I also have a list of suggested future CE courses, compiled from the CE course evaluation forms at last year's SOT meeting.

Useful URLs

Submitted by Bob Luebke

Free, full text access is available to a variety of textbooks at <http://www.FreeBooks4Doctors.com/>. Most of the texts are very clinically oriented, but there are exceptions. For example, the 5th edition of Janeway et al. Immunobiology can be accessed. By searching specialties, texts on allergy and asthma, microbiology, and parasitology are available, and links to other useful web sites (e.g., the National Library of Medicine's on-line Toxicology tutorial) are also provided.

Regulatory Committee Report

Submitted by Ken Hastings

FDA/Center for Drug Evaluation and Research (CDER)

The FDA/CDER *Guidance for Industry: Immunotoxicology Evaluation of Investigational New Drugs* has been published as a final document and is now on the FDA web site

(www.fda.gov/cder/guidance/4945fnl.doc).

Recently, an article appeared in the SOT Regulatory and Safety Evaluation Specialty Section Newsletter (Fall 2002) by Patrick J. Haley, DVM, PhD, in which the author presented an overview of guidelines on immunotoxicity testing that have been published, either as draft or final documents, in the US, Europe, and Japan. I will not present a critique of the article; it is quite good and anyone interested should read it (I have an electronic version and will be happy to e-mail a copy). There are, however, a few points made in the article with respect to the draft FDA/CDER guidance that should be clarified. First, in response to comments made to the Agency on the draft guidance document, there are several changes in the final guidance. Dr. Haley did not have access to these changes and therefore could only comment on the content of the draft, so no criticism is intended here.

One point that should be clarified is that *all* nonclinical toxicology data, as well as any available clinical data, should be evaluated for signs that an investigational drug has the potential to cause unintended immunosuppression. However, with a couple of exceptions, there is no recommendation that a traditional functional assay (e.g. drug effect on T-dependent antibody response) be conducted routinely in drug development. I believe that Dr. Haley understands this to be the case, but I wanted to clarify the point: such studies are recommended only for

cause. Another issue raised by Dr. Haley concerns dose selection for directed immunotoxicity studies. The FDA guidance specifically states that in the design of an immune function study, *“the dose, duration, and route of administration ... should be consistent with the study in which the adverse [immune] effect was observed.”*

Although there may be situations in which this recommendation might be impractical, the general principle applies and logically follows the idea that general nonclinical toxicology studies should be used to detect unintended immunosuppression. Although the FDA guidance does not specifically deal with the issue of study timing with respect to clinical trials, it should be understood that immune function studies should be considered as soon as signs of unintended immunosuppression are observed. Obviously, such decisions should be made in the context of the overall drug development program, but should take into consideration the safety of clinical trials. Once again, it is important to consider that flexibility implies responsibility.

One question raised by Dr. Haley is: “Should all drugs intended to be used to treat patients with HIV infection be evaluated in an immune function assay?” This is a fair question and has been clarified in the final guidance; immune function studies are recommended for drugs intended to treat HIV infection (e.g. nucleoside analogues, protease inhibitors), not all drugs that may be used to treat patients with HIV-related disease. This should significantly lessen the number of investigational drugs to be tested using functional assays.

There are some other modifications in the final guidance and you are encouraged to visit the FDA web site (www.fda.gov/cder/guidance/4945fnl.doc) where the pdf version of the document is also available (www.fda.gov/cder/guidance/4945fnl.pdf).

Communications Committee Report

Submitted by L. Peyton Myers

The Communications Committee is still in the process of updating the directory for distribution for the upcoming meeting. As mentioned before, the directory will be in PDF format this year to forgo costs of printing and shipping. Once the directory is completed, we will send out the file by email to Immunotoxicology Specialty Section members.

SOT National has expanded their search engine online to include searches by specialty section or by regional chapter. If you have not taken a chance to look up your own name online, please take a moment to do so. SOT keeps good records, but from time to time, people are not listed in the correct specialty section or regional chapter.

A few new announcements have been added to the Immunotoxicology Specialty Section website. Briefly, they involve proposal requests, undergraduate immunotoxicology opportunities, and immunotoxicology jobs. Check out the “Important Announcements” section of the website for more information. We are in the process of updating new listings on a monthly basis. If you have any announcements or postings that are relevant to immunotoxicology, please forward them so we can get them online.

Lastly, if you get a chance in the near future, please take a moment to check out the website for Immunotoxicology Specialty Section at:

<http://www.toxicology.org/MemberServices/SpecSection/immunotox/Index.html>

Let us know if you have any suggestions, alterations, modifications, etc. which would make the website more user-friendly and accessible.

Changes in Toxicological Sciences

Submitted by MaryJane Selgrade

Two important changes have occurred at Toxicological Sciences with respect to manuscript handling. First, manuscript submission and review have gone on line. To submit manuscripts go to <http://toxsci.manuscriptcentral.com> and follow the instructions for authors. Second, Meryl Karol has stepped down as Associate Editor. We all owe her a big thank you. She had been handling more than 50 manuscripts a year. MaryJane Selgrade and David Lawrence are now Associate Editors and will be getting the papers that Meryl used to handle.

The Toxicological Sciences web site has a list of some 1500 potential reviewers. Anyone who has submitted or reviewed a manuscript ends up on this list. Many of you are on the list of reviewers, but because the system is new, keyword and specialty information is lacking. So even if you have no manuscript to submit, log on, create an account, go to edit your information on the main menu, and fill in the keyword and specialty information. It is important to provide this information because associate editors use it to find appropriate reviewers. Also, if you are interested in reviewing papers and have not been asked before, let MaryJane (selgrade.maryjane@epamail.epa.gov) and/or David (david.lawrence@wadsworth.org) know that you are interested and send us your CV. The hard work of authors and reviewers is what makes Toxicological Sciences the fine journal that it is. Thanks and keep up the good work.

Pay Your Dues

When your dues notice arrives from SOT, don't bury it in those piles on your desk.

Renew your membership in the Immunotoxicology Specialty Section.

Thank you!

MEETING ANNOUNCEMENT

February 2003

Environmental Factors in Autoimmune Disease

NIEHS will be hosting a conference on the role that exposure to environmental agents plays in the development and exacerbation of autoimmune diseases. The conference is open to the public and will take place on February 4 and 5, 2003 in the Research Triangle Park area. The purpose of the workshop will be to seek input from the environmental health science and autoimmune research communities on the most appropriate and productive directions for research in the area of environmentally related autoimmune disease. The format of the workshop, which will include breakout sessions, is designed to enhance interactions among research scientists that will lead to identification of gaps in knowledge, appropriate questions for future research, innovative uses of existing technology and ideas for new technologies (including animal models), and types of collaborations needed to address these issues. The anticipated schedule includes:

February 4, Morning: A plenary session with presentations from experts in the field. Tentatively scheduled to attend are Fred Miller and Glinda Cooper (NIEHS) and Michael Pollard (Scripps Institute). **Afternoon:** Presentations by NIEHS-funded grantees who were part of the RFA entitled, "Environment/Infection/Gene Interactions in Autoimmune Disease."

February 5, Morning: Breakout sessions to discuss research needs and directions in this field. **Afternoon:** Review of recommendations from breakout sessions and conference wrap-up.

More information will be made available in the near future, but please mark these dates on your calendar. If you would like further information, please contact Pat Mastin at 919-541-3289 or mastin@niehs.nih.gov.

Request for Proposals

The Impact of Maternal Toxicity on Development of the Nervous, Reproductive, Endocrine, and Immune Systems.

Due January 10, 2003

The Long-Range Research Initiative (LRI) of the American Chemistry Council announces a Request for Proposals (RfP) on "The Impact of Maternal Toxicity on Development of the Nervous, Reproductive, Endocrine, and Immune Systems" (RfP No. MTH-02-02). Proposals in response to the RfP must be received by the Council no later than January 10, 2003. For more information and guidance on the RfP, please go to <http://www.uslri.com> and click on "Recently Posted RfP's".

WANTED

Undergraduate Minority Students for Immunotoxicology

The Molecular and Environmental Toxicology Center of the University of Wisconsin invites students to apply for its NIEHS supported 2003 Summer Undergraduate Minority Student Research Program. Participants will join faculty mentors in ongoing research projects in Immunotoxicology, Biochemical and Genetic Toxicology, and Neuropharmacology. At the end of the 9-week program, students present their work at a campus-wide summer research symposium. Students will also participate in a weekly tutorial session and attend seminars that offer guidance regarding graduate study and career opportunities in Toxicology. The program covers most expenses (including travel, housing, and a food allowance) and offers a competitive stipend (\$3,000 minimum). Applicants should be African American, Hispanic, or Native American and must be U.S. citizens or permanent residents. Juniors with grade point averages of at least 3.0 are preferred, although sophomores may apply.

More information on this program and an application form can be obtained from Jane Lambert, Molecular and Environmental Toxicology Center, 290 Enzyme Institute, 1710 University Ave., Madison, WI 53726-4087. (jflamber@facstaff.wisc.edu).

FINAL DEADLINE: March 1, 2003.

Recent Immunotoxicology Publications

Compiled by Helen Ratajczak

ANYTIME you have a new publication to report, please send it to hratajcz@rdg.boehringer-ingenheim.com It will be included in the next newsletter.

ASTHMA, ALLERGY AND HYPERSENSITIVITY

Antony AB, Tepper RS, Mohammed KA. Cockroach extract antigen increases bronchial airway epithelial permeability. *J Allergy Clin Immunol* 110:589-595, 2002.

Asai K, Kanazawa H, Otani K, Shiraishi S, Hirata K, Yoshikawa J. Imbalance between vascular endothelial growth factor and endostatin levels in induced sputum from asthmatic subjects. *J Allergy Clin Immunol* 110:571-575, 2002.

Basketter DA, Evans P, Gerberick GF, Kimber I. Factors affecting thresholds in allergic contact dermatitis: safety and regulatory considerations. *Contact Dermat* 47:1-6, 2002.

Bolte G, Krauss-Etschmann S, Konstantopoulos N, Bischof W, Fahlbusch B, Schendel DJ, Wichmann HE, Heinrich J. Different effects of endotoxin versus mite and cat allergen exposure on T-cell differentiation in infants. *J Allergy Clin Immunol* 110:634-640, 2002.

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- Cumberbatch M, Dearman RJ, Groves RW, Antonopoulos C, Kimber I. Differential regulation of epidermal Langerhans cell migration by interleukins (IL)-1 α and IL-1 β during irritant and allergen-induced cutaneous immune responses. *Toxicol Appl Pharmacol* 182:126-135, 2002.
- Escoubet-Lozach L, Glass CK, Wasserman SI. The role of transcription factors in allergic inflammation. *J Allergy Clin Immunol* 110:553-564, 2002.
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- Gordon T, Spanier J, Butala JH, Li P, Rossman TG. In vitro bioavailability of heavy metals in pressure-treated wood dust. *Toxicol Sc* 67:32-37, 2002.
- Hakonarson H, Whelan R, Leiter J, Kim C, Chen M, Campbell D, Grunstein MM. T lymphocyte-mediated changes in airway smooth muscle responsiveness are attributed to induced autocrine release and actions of IL-5 and IL-1. *J Allergy Clin Immunol* 110:624-633, 2002.
- Kimber I, Dearman RJ. Allergic contact dermatitis: the cellular effectors. *Contact Dermatitis* 46:1-5, 2002.
- Koike E, Hirano S, Shimojo N, Kobayashi T. cDNA microarray analysis of gene expression in rat alveolar macrophages in response to organic extract of diesel exhaust particles. *Toxicol Sc* 67:241-246, 2002.
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- Pochard P, Gosset P, Grangette C, Andre C, Tonnel A-B, Pestel J, Mercenier A. Lactic acid bacteria inhibit T_H2 cytokine production by mononuclear cells from allergic patients. *J Allergy Clin Immunol* 110:617-623, 2002.
- Van Och FMM, Van Loveren HV, DeJong WH, Vandebriel RJ. Cytokine production induced by low-molecular-weight chemicals as a function of the stimulation index in a modified local lymph node assay: An approach to discriminate contact sensitizers from respiratory sensitizers. *Toxicol Appl Pharmacol* 184:46-56, 2002.

AUTISM

- Badner JA, Gershon ES. Regional meta-analysis of published data supports linkage of autism with markers on chromosome 7. *Molecular Psychiatry*. 7:56-66, 2002.
- Betancur C, Corbex M, Spielwey C, Philippe A, Laplanche JL, Launay JM, Gillberg C, Mouren-Simeoni MC, Hamon M, Giros B, Nosten-Bertrand M, Leboyer M. Serotonin transporter gene polymorphisms and hyperserotonemia in autistic disorder. *Molecular Psychiatry*. 7:67-71, 2002.
- Brudnak MA. Probiotics as an adjuvant to detoxification protocols. *Medical Hypotheses* 58:382-385, 2002.
- Veenstra-VanderWeele J, Kim SJ, Lord C, Courchesne R, Akshoomoff N, Leventhal BL, Courchesne E, Cook EH Jr. Transmission disequilibrium studies of the serotonin 5-HT_{2A} receptor gene (HTR2A) in autism. *American Journal of Medical Genetics*. 114:277-83, 2002.
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Reviews

Bigham M, Copes R, Srouf L. Exposure to thimerosal in vaccines used in Canadian infant immunization programs, with respect to risk of neurodevelopmental disorders. *Canada Communicable Disease Report*. 28:69-80, 2002.

Kaminska B, Czaja M, Kozielska E, Mazur E, Korzon M. Use of secretin in the treatment of childhood autism. *Medical Science Monitor*. 8:RA22-6, 2002 .

Pletnikov MV, Moran TH, Carbone KM. Borna disease virus infection of the neonatal rat: developmental brain injury model of autism spectrum disorders. *Frontiers in Bioscience*. 7:593-607, 2002.

Stanley JA. In vivo magnetic resonance spectroscopy and its application to neuropsychiatric disorders. *Canadian Journal of Psychiatry - Revue Canadienne de Psychiatrie*. 47:315-26, 2002.

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