The 12 most frequently viewed articles of 2004

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Dear Colleagues

The 10th anniversary year of *Cell Stress & Chaperones* begins with this issue. This has been a decade of great change for the scientific journals publishing industry and our journal is no exception. We began as a print journal with no electronic version. Today, the electronic version is the major gateway to our journal. To gain insight into how our journal is being used, I thought that it would be interesting to describe articles in *Cell Stress & Chaperones* most frequently accessed electronically from January through October of 2004, ie, those available for the year when this article was written. 12 articles have been cited from 2 sources of this information. One is the journal site maintained by our publishing partner Allen Press at <http://cest.allenpress.com>. I have collected from this site the top 10 articles based on user hits. The second source is BioOne, an aggregated collection of 71 journals from 56 publishers, available to institutions by subscription. A monthly list of the top 25 articles in BioOne, based on user hits, for the first 10 months of 2004 lists 2 articles from *Cell Stress & Chaperones*. BioOne is primarily a collection of organismal biology journals and our articles on animal and plant stress responses fit well in this database. In 2005, *Cell Stress & Chaperones* will be available in PubMedCentral, and this will give articles with medical content a comparable database. PubMedCentral will become our public portal and will add our journal to a growing list of biomedical journals as well. Even though our journal is often classified as a cell biology journal and a specialty journal, our readers know that it is a truly integrative and multidisciplinary biomedical journal of cellular stress responses. Articles will be available in PubMedCentral 6 months after publication. The journal archive at the Allen Press site already provides public access after 6 months.

As a rule, methods and review articles are among the most frequently cited, so it is no surprise to find 6 representatives of these kinds of articles among the top 12. The 1 pure methods article is entitled "The stress kit: a new method based on competitive reverse transcriptase-polymerase chain reaction to quantify the expression of human α B-crystallin, Hsp27, and Hsp60" (Bajramovi et al 2000). The popularity of this article likely is a combi-

nation of the general popularity of polymerase chain reaction-based, semiquantitative assays of gene expression and the selection of 3 Hsps that have been implicated in several human diseases. An additional attraction of the article is that the method was applied to the heat-induced expression of these 3 proteins in human astrogloma cells (please refer to the online versions of these articles for additional references if desired). Although not strictly a methods article, the second article, entitled "Preparation and characterization of polyclonal antibodies against human chaperonin 10" (Somodevilla-Torres et al 2000), describes the preparation of a reagent and its use to distinguish human chaperonin 10 from a homologue called early pregnancy factor. The production of this novel antibody and interest in early pregnancy factor may account for the interest in this article. The review articles include 2 meeting reviews and 2 reviews of a research area. One of the latter reviews is entitled "Mechanisms for regulation of Hsp70 function by Hsp40" (Fan et al 2003). This is one of a series of reviews of Hsp70 cochaperones arranged and edited by our reviews editor, Avrom Caplan. It is a timely review of a very large and phylogenetically broadly distributed protein family related to the *Escherichia coli* DnaJ proteins. A substantial literature exists, and many groups study these proteins or the Hsp70 family of proteins (or both) with which they interact to specify cellular functions. This review presents model pathways for interactions and discusses interactions using known molecular structures, all of which contribute to the appeal of this article. The other review article is entitled "The heat shock response and cytoprotection of the intestinal epithelium" (Malago et al 2002). This was one of a series of reviews commissioned to inaugurate the Stress Signaling and Aging Section of *Cell Stress & Chaperones*. No doubt many readers were attracted to this review by the large interest in inflammatory diseases of the human intestine and interest in nuclear factor kappa B, as well as the mitogen-activated protein kinase pathway.

Reports on even small meetings and workshops of 150 participants or less have been a popular and novel contribution to our field through the pages of *Cell Stress & Chaperones*. It is no surprise, then, that 2 meeting reports are among the top 12 articles. A report entitled "Cellular responses to oxidative and osmotic stress" (Mager et al

2000) covered a meeting held in The Netherlands in 1999, attended by about 150 scientists. The relatively high number of hits on this article probably reflects the broad interest in oxidative stresses as sources of both cellular damage and cellular signaling coming from both the external environment and from within multicellular organisms and cells. Osmotic stress responses present some similarities to oxidative stress responses while possessing unique components, so this report provided readers with a logical and useful combination. It was gratifying to see the second meeting report entitled "Molecular biology of stress responses" (Grover 2002) in the top 12 because it reflects a special function of the Cell Stress Society International, the organization of international workshops in developing countries. This report covers the third workshop in this series, organized by Daniel Ciocca and colleagues in Mendoza, Argentina, in 2001. These workshops are being held on the off year from the CSSI international congresses. The first of these workshops was organized by Subhash Lakhota and colleagues in India in 1997. It represented a grassroots movement among investigators to hold more meetings outside of North America and western Europe, the sites of most meetings in our field, to address the need to exchange knowledge and promote research worldwide on the responses mounted by essentially all cells to environmental, physiological, and pathological stresses. Tangchun Wu in China organized the second and fourth workshops in 1999 and 2004, respectively. The fifth workshop is being planned for Concepcion, Chile, in 2006.

Two of the articles feature organisms that are not on the popular shortlist of laboratory darlings with sequenced genomes. *Fundulus heteroclitus* (killifish) was used in the article entitled "Killifish metallothionein messenger RNA expression following temperature perturbation and cadmium exposure" (Van Cleef-Toedt et al 2001). Killifish have attracted interest in laboratory toxicity testing and as sentinel species in estuaries along the Atlantic coast. Another attraction of this article is the study of metallothionein messenger RNA induced by a heavy metal as a potential biomarker of exposure to environmental chemical stress. The second article of this type is titled "Molecular identification and expression of heat shock cognate 70 (*hsc70*) and heat shock protein 70 (*hsp70*) genes in the Pacific oyster *Crassostrea gigas*" (Boutet et al 2003). Readers were probably attracted to this article by a combination of interest in marine bivalves such as the Pacific oyster as sentinel species in marine environments and the paucity of gene sequences from marine bivalves.

Five of the top 12 articles report studies using human cell lines or genes, a solid justification for our latest dedicated section "Stress Response Translational Research." Two of these articles have been discussed above. Of the 3 remaining articles in chronological order, the first article

is entitled "Heat shock and arsenite induce expression of the nonclassical class I histocompatibility HLA-G gene in tumor cell lines" (El Cherif et al 2000). The alternative transcripts of the human gene encoding HLA-G were selectively upregulated by either heat or arsenite, and a hypothesis was presented that HLA-G is involved in signaling the immune response to stress. The second article is entitled "Overexpression of apolipoprotein J in human fibroblasts protects against cytotoxicity and premature senescence induced by ethanol and tert-butylhydroperoxide" (Dumont et al 2002). Stress-induced premature senescence was studied using human diploid fibroblasts. It was proposed that senescence related to the overexpression of apolipoprotein J has antiapoptotic and not antiproliferative effects. The third of these articles is entitled "Endoplasmic reticulum stress as a correlate of cytotoxicity in human tumor cells exposed to diindolylmethane in vitro" (Sun et al 2004). It was shown that diindolylmethane toxicity in cultured cells is enhanced by nutritional deprivation and stress to the endoplasmic reticulum. It was proposed that stressed cells within growing solid tumors may be more sensitive to killing by diindolylmethane, a physiological condensation product of the dietary phytochemical indole-3-carbinol. The latter compound is in cruciferous vegetables such as broccoli and cabbage.

Last, but certainly not least, because the articles have not been ordered by hits, is an article from the laboratory of 1 of our journal's most frequent contributors and reviewers, Professor Ian Brown. This article is titled "The effect of hyperthermia on the induction of cell death in brain, testis, and thymus of the adult and developing rat" (Khan and Brown 2002). There is much current interest in apoptosis, and this article shows that temperature increases in the fever range trigger apoptosis in proliferating cells of testis and thymus but not in the mature, postmitotic cells of the adult cerebellum.

On a final note, *Cell Stress & Chaperones* is an international journal and it is fitting that the top 12 articles were contributed by scientists from 9 countries: Australia, Belgium, Canada, France, Germany, Greece, India, The Netherlands, and The United States of America.

References

- Bajramovi J, Geutshkens S, Bsibsi M, Boot M, Hassankhan R, Verhulst K, van Noort J. 2000. The stress kit: a new method based on competitive reverse transcriptase-polymerase chain reaction to quantify the expression of human α B-crystallin, Hsp27, and Hsp60. *Cell Stress Chaperones* 5:30–35.
- Boutet I, Tanguy A, Rousseau S, Auffret M, Moraga D. 2003. Molecular identification and expression of heat shock cognate 70 (*hsc70*) and heat shock protein 70 (*hsp70*) genes in the Pacific oyster *Crassostrea gigas*. *Cell Stress Chaperones* 8:76–85.
- Dumont P, Chainiaux F, Eliaers F, Petropoulou C, Remacle J, Koch-

- Brandt C, Gonos E, Toussaint O. 2002. Overexpression of apolipoprotein J in human fibroblasts protects against cytotoxicity and premature senescence induced by ethanol and tert-butylhydroperoxide. *Cell Stress Chaperones* 7:23–35.
- El Cherif I, Morange M, Dausset J, Carosella E, Pascale P. 2000. Heat shock and arsenite induce expression of the nonclassical class I histocompatibility HLA-G gene in tumor cell lines. *Cell Stress Chaperones* 5:207–218.
- Fan C-Y, Lee S, Cyr D. 2003. Mechanisms for regulation of Hsp70 function by Hsp40. *Cell Stress Chaperones* 8:309–316.
- Grover A. 2002. Molecular biology of stress responses. *Cell Stress Chaperones* 7:1–5.
- Khan V, Brown I. 2002. The effect of hyperthermia on the induction of cell death in brain, testis, and thymus of the adult and developing rat. *Cell Stress Chaperones* 7:73–90.
- Mager W, de Boer A, Siderius M, Voss H-P. 2000. Cellular responses to oxidative and osmotic stress. *Cell Stress Chaperones* 5:73–75.
- Malago J, Koninkx J, van Dijk J. 2002. The heat shock response and cytoprotection of the intestinal epithelium. *Cell Stress Chaperones* 7:191–199.
- Somodevilla-Torres M, Hillyard N, Morton H, et al. 2000. Preparation and characterization of polyclonal antibodies against human chaperonin 10. *Cell Stress Chaperones* 5:14–20.
- Sun S, Han J, Ralph W Jr, Chandrasekaran A, Liu K, Auburn K, Carter T. 2004. Endoplasmic reticulum stress as a correlate of cytotoxicity in human tumor cells exposed to diindolylmethane in vitro. *Cell Stress Chaperones* 9:76–87.
- Van Cleef-Toedt K, Kaplan L, Crivello J. 2001. Killifish metallothionein messenger RNA expression following temperature perturbation and cadmium exposure. *Cell Stress Chaperones* 6:351–359.