

Biology Department Publications 2003

Anderson, C. W. and E. Appella. Signaling to the p53 tumor suppressor through pathways activated by genotoxic and non-genotoxic stresses. *Handbook of Cell Signaling*, R. Bradshaw and E. Dennis, Editors, Vol. 3, Chapter 306, pp. 237-247, Academic Press, San Diego, CA (November, 2003).

Anderson, C. W., Calvete, J., Fox, J. W., and Appella, E. News from the Protein Society: Meeting Report. *Protein Science* 12: 398-400 (February, 2003).

Bagian, J. P., Boskey, A. L., Brady, J. F., Buckey, Jr., J. C., Colket III, M. B., Cummins, H. Z., Jones, L., Lawley, A., Pfeiffer, S. E., and Setlow, R. B., co-authors, National Research Council Report "Factors Affecting the Utilization of the International Space Station for Research in the Biological and Physical Sciences," The National Academies Press, Washington, DC, 92 p. (August, 2003).

Baxa, U., Taylor, K. L., Wall, J. S., Simon, M. N., Cheng, N., Wickner, R. B., and Steven, A. C. Architecture of Ure2p prion filaments: The N-terminal domains form a central core fiber. *Journal of Biological Chemistry* 278(44): 43717-43727 (October, 2003).

Bewley, M. C., Davis, C. A., Marohnic, C. C., Taormina, D., and Barber, M. J. The structure of the S127P mutant of cytochrome b5 reductase that causes methemoglobinemia shows the AMP moiety of the flavin occupying the substrate binding site. *Biochemistry* 42(45): 13145-13151 (November, 2003).

Brenner, D. J., Doll, R., Goodhead, D. T., Hall, E. J., Land, C. E., Little, J. B., Lubin, J. H., Preston, D. L., Preston, R. J., Puskin, J. S., Ron, E., Sachs, R. K., Samet, J. M., Setlow, R. B., and Zaider, M. Cancer risks attributable to low doses of ionizing radiation: Assessing what we really know. *Proceedings of the National Academy of Sciences USA* 100(24): 13761-13766 (November, 2003).

Cao, W., Baniecki, M. L., McGrath, W. J., Bao, C., Deming, C. B., Rade, J. J., Lowenstein, C. J., and Mangel, W. F. Nitric oxide inhibits the adenovirus proteinase *in vitro* and viral infectivity *in vivo*. *FASEB J.* 17(15): 2345-2346 (December, 2003).

Daniels, B. V., Myles, D. A. A., Forsyth, T., and Lawson, C. L. Crystals of *trp* repressor suitable for high-resolution neutron Laue diffraction studies. *Acta Crystallographica Section D: Biological Crystallography* D59(Pt. 1): 136-138 (January, 2003).

Dilmanian, F. A., Morris, G. M., Zhong, N., Bacarian, T., Hainfeld, J. F., Kalf-Ezra, J., Brewington, L. J., Tammam, J., and Rosen, E. M. Murine EMT-6 carcinoma: High therapeutic efficacy of microbeam radiation therapy. *Radiation Research* 159(5): 632-641 (May, 2003).

Eswaramoorthy, S., Gerchman, S., Graziano, V., Kycia, H., Studier, F. W., and Swaminathan, S. Structure of a yeast hypothetical protein selected by a structural genomics approach. *Acta Crystallographica Section D: Biological Crystallography* D59(Pt. 1): 127-135 (January, 2003). Cover Illustration: A representation of the fold of yeast hypothetical protein with PLP and protein ligand Lys49 which is bound to PLP (p. 127).

Filippova, E. M., Monteleone, D. C., Trunk, J. G., Sutherland, B. M., Quake, S. R., and Sutherland, J. C. Quantifying double-strand breaks and clustered damages in DNA by single-molecule laser fluorescence sizing. *Biophysical Journal* 84(2): 1281-1290 (February, 2003).

Fisher, R. D., Wang, B., Alam, S. L., Higginson, D. S., Robinson, H., Sundquist, W. I., and Hill, C. P. Structure and ubiquitin binding of the ubiquitin interacting motif. *Journal of Biological Chemistry* 278(31): 28976-28984 (August, 2003).

Flanagan, J. M. Role of protein turnover in the control of metabolism: A tale of two lysines. *Proceedings of the 1st Colloquium in Protein Structure, Function and Dynamics*, Ponce, Puerto Rico (February, 2003).

Geebelen, W., Adriano, D. C., van der Lelie, D., Mench, M., Carleer, R., Clijsters, H., and Vangronsveld, J. Selected bioavailability assays to test the efficacy of amendment-induced immobilization of lead in soils. *Plant and Soil* 249(1): 217-228 (February, 2003).

Geets, J., Vangronsveld, J., Diels, L., and van der Lelie, D. The application of molecular tools to follow up bioremediation. *Journal of Soils & Sediments* 3(4): 251 (December, 2003).

Gnatenko, D. V., Dunn, J. J., McCorkle, S. R., Weissmann, D., Perrotta, P. L., and Bahou, W. F. Transcript profiling of human platelets using microarray and serial analysis of gene expression. *Blood* 101(6): 2285-2293 (March, 2003).

Howitt, J., Anderson, C. W., and Freimuth, P. Adenovirus interaction with its cellular receptor CAR. *Adenoviruses: Model and Vectors in Virus-Host Interactions. Virion-Structure – Viral Replication and Host-Cell Interactions*, W. Doerfler and P. Bohm, Editors, Vol. 272: Current Topics in Microbiology and Immunology, Chapter 11, pp. 331-364, Springer-Verlag, Heidelberg, Germany (April, 2003).

Howitt, J., Bewley, M., Graziano, V., Flanagan, J., and Freimuth, P. Structural basis for variation in adenovirus affinity for the cellular receptor CAR. *Journal of Biological Chemistry* 278(28): 26208-26215 (July, 2003).

Huai, Q., Sun, Y., Wang, H., Chin, L.-S., Li, L., Robinson, H., and Ke, H. Crystal structure of DJ-1/RS and implication on familial Parkinson's disease. *FEBS Letters* 549(1-3): 171-175 (August, 2003).

Kaidbey, K., Sutherland, B., Bennett, P., Wamer, W. G., Barton, C., Dennis, D., and Kornhauser, A. Topical glycolic acid enhances photodamage by ultraviolet light. *Photodermatology Photoimmunology Photomedicine* 19(1): 21-27 (February, 2003).

Ko, T.P., Robinson, H., Gao, Y.G., Chen, C.H., DeVries, A.L., and Wang, A. H. J. The refined crystal structure of an eel pout type III antifreeze protein RD1 at 0.62-Å resolution reveals structural microheterogeneity of protein and solvation. *Biophysical Journal* 84(2): 1228-1237 (February, 2003).

Kumaran, D., Eswaramoorthy, S., Gerchman, S., Kycia, H., Studier, F. W., and Swaminathan, S. Crystal structure of a putative CN hydrolase from yeast. *PROTEINS: Structure, Function and Genetics* 52(2): 283-291 (August, 2003).

Lacape, J.-M., Nguyen, T.-B., Thibivilliers, S., Bojinov, B., Courtois, B., Cantrell, R. G., Burr, B., and Hau, B. A combined RFLP-SSR-AFLP map of tetraploid cotton based on a *Gossypium hirsutum* x *Gossypium barbadense* backcross population. *Genome* 46(4): 612-626 (August, 2003).

Lacks, S. A. Guest Commentary: Rambling and scrambling in bacterial transformation – a historical and personal memoir. *Journal of Bacteriology* 185(1): 1-6 (January, 2003).

Lashuel, H. A., Hartley, D. M., Petre, B. M., Wall, J. S., Simon, M. N., Walz, T., and Lansbury, Jr., P. T. Mixtures of wild-type and a pathogenic (E22G) form of A β 40 *in vitro* accumulate protofibrils, including amyloid pores. *Journal of Molecular Biology* 332: 795-808 (September, 2003).

Liu, T., Diemann, E., Li, H., Dress, A. W. M., and Muller, A. Self-assembly in aqueous solution of wheel-shaped MO₁₅₄ oxide clusters into vesicles. *Nature* 426: 59-62 (November 2003).

Makowski, L. and Soares, A. Estimating the diversity of peptide populations from limited sequence data. *Bioinformatics* 19(4): 483-489 (March, 2003).

Mangel, W. F., Baniecki, M. L., and McGrath, W. J. Specific interactions of the adenovirus proteinase with the viral DNA, an 11-amino-acid viral peptide, and the cellular protein actin. *Cellular and Molecular Life Sciences* 60(11): 2347-2355 (November, 2003).

Marohnic, C. C., Bewley, M. C., and Barber, M. J. Engineering and characterization of a NADPH-utilizing cytochrome b₅ reductase. *Biochemistry* 42(38): 11170-11182 (September, 2003).

McGrath, W. J., Ding, J., Didwania, A., Sweet, R. M., and Mangel, W. F. Crystallographic structure at 1.6-Å resolution of the human adenovirus proteinase in a covalent complex with its 11-amino-acid peptide cofactor: Insights on a new fold. *Biochimica et Biophysica Acta* 1648(1-2): 1-11 (May, 2003).

Mergeay, M., Monchy, S., Vallaey, T., Auquier, V., Benotmane, A., Bertin, P., Taghavi, S., Dunn, J., van der Lelie, D., and Wattiez, R. *Ralstonia metallidurans*, a bacterium specifically adapted to toxic metals: Towards a catalogue of metal-responsive genes. *FEMS Microbial Reviews* 27(2-3): 385-410 (June, 2003).

Moche, M., Shanklin, J., Ghoshal, A., and Lindqvist, Y. Azide and acetate complexes plus two iron-depleted crystal structures of the di-iron enzyme Δ9 stearoyl-ACP desaturase-implications for oxygen activation and catalytic intermediates. *Journal of Biological Chemistry* 278(27): 25072-25080 (July, 2003).

Opalka, N., Beckmann, R., Boisset, N., Simon, M. N., Russell, M., and Darst, S. A. Structure of the filamentous phage pIV multimer by cryo-electron microscopy. *Journal of Molecular Biology* 325(3): 461-470 (January, 2003).

Paaventhan, P., Joseph, J. S., Seow, S. V., Vaday, S., Robinson, H., Chua, K. Y., and Kolatkar, P. R. A 1.7 Å structure of Fve, a member of the new fungal immunomodulatory protein family. *Journal of Molecular Biology* 332: 461-470 (September, 2003).

Praissman, J. L. and Sutherland, J. C. Laboratory voice data entry system. *BioComputing: Computer Tools for Biologists*, S. M. Brown, Editor, Chapter 61, pp. 493-502, Eaton Publishing, Westborough, MA (April, 2003).

Rithidech, K. and Dunn, J. J. Combining multiplex and touchdown PCR for microsatellite analysis. In: *Methods in Molecular Biology*, J. M. S. Barlett and D. Stirling, Eds., Vol. 226, pp. 299-303, PCR Protocols, Second Edition, Humana Press, Inc., Totowa, NJ (August, 2003).

Saito, S., Yamaguchi, H., Higashimoto, Y., Chao, C., Xu, Y., Fornace, Jr., A. J., Appella, E., and Anderson, C. W. Phosphorylation site interdependence of human p53 post-translational modifications in response to stress. *Journal of Biological Chemistry* 278(39): 37536-37544 (September, 2003).

Sanghani, P. C., Robinson, H., Bennett-Lovsey, R., Hurley, T. D., and Bosron, W. F. Structure-function relationships in human Class III alcohol dehydrogenase (formaldehyde dehydrogenase). *Chemico-Biological Interactions* 143-144: 195-200 (February, 2003).

Setlow, J. K., Editor, *Genetic Engineering: Principles and Methods*, Vol. 25, 311 p., Kluwer Academic/Plenum Publishers, NY (August, 2003).

Setlow, R. B. The hazards of space travel. *EMBO Reports* 4(11): 1013-1016 (November, 2003).

Shanklin, J. and Whittle, E. Evidence linking the *Pseudomonas oleovorans* alkane ω -hydroxylase, an integral membrane diiron enzyme, and the fatty acid desaturase family. *FEBS Letters* 545(2-3): 188-192 (June, 2003).

Smith, N., Mayhew, M., Robinson, H., Heroux, A., Charlton, D., Holden, M. J., and Gallagher, D. T. Crystallization and phasing of alanine dehydrogenase from *Archaeoglobus fulgidus*. *Acta Crystallographica Section D: Biological Crystallography* D59: 2328-2331 (December, 2003).

Snellinx, Z., Taghavi, S., Vangronsveld, J., and van der Lelie, D. Microbial consortia that degrade 2,4-DNT by interspecies metabolism: Isolation and characterisation. *Biodegradation* 14(1): 19-29 (January, 2003).

Soares, A. S., Caspar, D. L. D., Weckert, E., Heroux, A., Holzer, K., Schroer, K., Zellner, J., Schneider, D., Nolan, W., and Sweet, R. M. Three-beam interference is a sensitive measure of the efficacy of macromolecular refinement techniques. *Acta Crystallographica Section D: Biological Crystallography* D59: 1716-1724 (October, 2003).

Sutherland, B. M., Bennett, P. V., Cintron, N. S., Guida, P., and Laval, J. Low levels of endogenous oxidative damage cluster levels in unirradiated viral and human DNAs. *Free Radical Biology & Medicine* 35(5): 495-503 (September, 2003).

Sutherland, B. M., Bennett, P. V., Georgakilas, A. G., and Sutherland, J. C. Evaluation of number average length analysis in quantifying double strand breaks in genomic DNAs. *Biochemistry* 42(11): 3375-3384 (March, 2003).

Sutherland, B. M., Georgakilas, A. G., Bennett, P. V., Laval, J., and Sutherland, J. C. Quantifying clustered DNA damage induction and repair by gel electrophoresis, electronic imaging and number average length analysis. *Mutation Research: Fundamental and Molecular Mechanisms of Mutagenesis* 531(1-2): 93-107 (October, 2003).

Sweet, R. M. Book review: Outline of Crystallography for Biologists. *Acta Crystallographica Section D: Biological Crystallography* D59(Pt. 5): 958 (May, 2003).

van der Lelie, D., Guest Editor, *Plant and Soil: International Journal on Plant – Soil Relationships*, Vol. 249(1), 236 p., Kluwer Academic Publishers, The Netherlands (February, 2003).

Vangronsveld, J., and van der Lelie, D. The use of alternative techniques for remediation of polluted sites and groundwater in Flanders: Plant-based strategies. *Journal of Soils & Sediments* 3(4): 250-251 (December, 2003).

Xiao, Y., Patolsky, F., Katz, E., Hainfeld, J. F., and Willner, I. "Plugging into enzymes": Nanowiring of redox enzymes by a gold nanoparticle. *Science* 299: 1877-1881 (March, 2003).

Yuan, P., Jedd, G., Kumaran, D., Swaminathan, S., Shio, H., Hewitt, D., Chua, N.-H., and Swaminathan, K. A HEX-1 crystal lattice required for Woronin body function in *Neurospora crassa*. *Nature Structural Biology* 10(4): 264-270 (April, 2003).