

CURRICULUM VITAE (January 2009)

George Dimopoulos PhD MBA

PERSONAL DATA

Home Address:

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Business Address:

Dept. of Molecular Microbiology and Immunology
Johns Hopkins School of Public Health, room W4609
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EDUCATION AND TRAINING

02/2005 – 12/2007, MBA with concentration in leadership and management from the Johns Hopkins University Carey Business School.

03/1996 – 08/2001, Postdoctoral fellow at the European Molecular Biology Laboratory, in Prof. Fotis C. Kafatos lab, Heidelberg, Germany. Field: Biology

02/1996, Ph.D. in Biology from the Department of Biology, University of Crete and the Institute of Molecular Biology & Biotechnology, Foundation of Research and Technology-Hellas, Heraklion, Greece. Field: Biology

02/1993 – 02/1994, Visiting Fellow/Special Student at the Department of Cellular and Developmental Biology, Harvard University, Cambridge, Massachusetts, USA. Field: Biology

06/1990, B.Sc. in Microbiology from the Department of Biology, Stockholm University, Stockholm, Sweden. Field: Microbiology

06/1987, U.C. in Ecoengineering from Mid-Sweden University, Östersund, Sweden. Field: Environmental Engineering.

OTHER ACADEMIC TRAINING

04/2001- 07/2003, Imperial College Faculty Development Courses & Workshops.

PROFESSIONAL EXPERIENCE

01/2009 – Present, Associate Professor at Johns Hopkins School of Public Health, Department of Molecular Microbiology and Immunology, Baltimore, USA. Principal responsibilities: research, lecturing, supervising and tutoring.

08/2003 – 12/2008, Assistant Professor at Johns Hopkins School of Public Health, Department of Molecular Microbiology and Immunology, Baltimore, USA. Principal responsibilities: research, lecturing, supervising and tutoring.

09/2001- 07/2003, Senior Lecturer at Imperial College London, Department of Biological Sciences / Centre for Molecular Microbiology & Infection, London, UK. Principal

responsibilities: research, managing a microarray facility, lecturing, supervising, tutoring and administrative responsibilities.

04/2008 – Present, President & Chief Executive Officer of Digital Life Artist Inc., Baltimore, USA.

PROFESSIONAL ACTIVITIES

Member of the Marie-Curie Fellowship Association
Member of the Harvard Graduate School of Arts and Sciences Alumni Association
Member of the Johns Hopkins Carey Business School Alumni Association
Member of the American Society of Tropical Medicine and Hygiene
Member of the American Society of Biochemistry and Molecular Biology

EDITORIAL ACTIVITIES

Editorial Board Member of the Insect Molecular Biology Journal
Editorial Board Member of the Open Parasitology Journal
Faculty of 1000 Biology member

HONORS AND AWARDS

Ellison medical Foundation Young Investigator Award.
European Union - Training and Mobility of Researchers (TMR)/Marie Curie postdoctoral fellowship (03/1996 - 02/1998).
Foundation of Research and Technology - Hellas Ph.D. fellowship (10/1990 – 02/1996).

PUBLICATIONS

Dong, Y. and **Dimopoulos, G.**, Anopheles fibrinogen –related proteins provide expanded pattern recognition capacity against bacteria and malaria parasites. Journal of Biological Chemistry, Accepted for publication.

Garver LS., Dong Y., and **Dimopoulos G.** Caspar control resistant to *Plasmodium falciparum* in diverse Anopheline species. PLoS Pathogens, Accepted for publication.

Das S., and **Dimopoulos G.** (2008) Molecular analysis of photic inhibition of blood-feeding in *Anopheles gambiae*. BMC Physiology 16;8(1):23.

Ramirez JL., Garver L., and **Dimopoulos G.** (2008) Challenges and Approaches for Mosquito Targeted Malaria Control. Curr. Mol. Medicine. Accepted for publication.

Abrantes A., **Dimopoulos G.**, Grosso AR., do Rosário VE. and Silveira H. (2008) Chloroquine mediated modulation of *Anopheles gambiae* gene expression. PLoS ONE 2;3(7).

Xi Z., Ramirez JL., **Dimopoulos G.** (2008) The Aedes aegypti Toll pathway controls dengue virus infection. *PLoS Pathog.*4(7).

Gomulski LM., **Dimopoulos G.**, Xi Z., Soares MB., Bonaldo MF., Malacrida AR., Gasperi G. (2008) Gene discovery in an invasive tephritid model pest species, the Mediterranean fruit fly, *Ceratitis capitata*. *BMC Genomics* 2008, 9:248.

Baton L, Garver L, Xi Z and **Dimopoulos G.** (2008) Functional genomics studies on the innate immunity of disease vectors. *Insect Science*, 15:15-27.

Warr, E., Das, S., Dong, Y., and **Dimopoulos, G.** (2008) The Gram-Negative Bacteria-Binding Protein gene family: Its role in the innate immune system of *Anopheles gambiae* and in anti-Plasmodium defense. *Insect Mol. Biol.*, 17:39-51.

Garver, LS, Xi, Z and **Dimopoulos, G.** (2008) Immunoglobulin superfamily members play an important role in the mosquito immune system, *Dev. & Comp. Immunol.* 32:519-31.

Dimopoulos G. (2007) Building a better mosquito: identifying the genes enabling malaria and dengue fever resistance in *A. gambiae* and *A. aegypti* mosquitoes. *J Vis Exp.* (5):233.

Aguilar, R., Das, S., Dong, Y. and **Dimopoulos, G.** (2007) Continuous exposure to Plasmodium results in decreased susceptibility and transcriptomic divergence of the *Anopheles gambiae* immune system. *BMC Genomics*, 8:451.

Baton, L., Warr, E., Hoffman S. and **Dimopoulos, G.** (2007) Programmed cell death during malaria parasite infection of the vertebrate host and mosquito vector. In *Programmed Cell Death in Protozoa*, Edited by Martin P. Landes Bioscience, Springer.

Garver, L.S., Baton, L., and Dimopoulos, G. (2007) Mosquito Immunity to the Malaria Parasite. In *Insect Immunology*, Edited by Nancy Beckage. Elsevier.

Baton, L, Garver, L.S, Xi, Z, and **Dimopoulos, G.** (2007) Functional genomics studies on the innate immunity of disease vectors. *Insect Science*. In Press.

Waterhouse, RM, Kriventseva, EV, Meister, S, Xi, Z, Alvarez, KV, Bartholomay, LC, Barillas-Mury, C, Bian, G, Blandin, S, Christensen, BM, Dong, Y, Jiang, H, Kanost, MR, Koutsos, AC, Levashina, EA, Li, J, Ligoxygakis, P, MacCallum, RM, Mayhew, GF, Mendes, A, Michel, K, Osta, MA, Paskewitz, S, Shin SW, Vlachou, D, Wang, L, Wei, W, Zheng, L, Zou, Z, Severson, DW, Raikhel, AS, Kafatos, FC, **Dimopoulos, G.**, Zdobnov, EM, Christophides, GK (2007) Evolutionary dynamics of immune-related genes and pathways in disease vector mosquitoes. *Science*, 316:1738-1743.

Nene, V, Wortman, JR, Lawson, D, Haas, B, Kodira, C, Tu, ZJ, Loftus, B, Xi, Z, Megy, K, Grabherr, M, Ren, Q, Zdobnov, EM, Lobo, NF, Campbell, KS, Brown, SE, Bonaldo, MF, Zhu, J, Sinkins, SP, Hogenkamp, DG, Amedo, P, Arsenburger, P, Atkinson, PW, Bidwell, S, Biedler, J,

Birney, E, Bruggner, RV, Costas, J, Coy, MR, Crabtree, J, Crawford, M, Debruyne, B, Decaprio, D, Eiglmeier, K, Eisenstadt, E, El-Dorry, H, Gelbart, WM, Gomes, SL, Hammond, M, Hannick, LI, Hogan, JR, Holmes, MH, Jaffe, D, Johnston, SJ, Kennedy, RC, Koo H, Kravitz, S, Kriventseva, EV, Kulp, D, Labutti, K, Lee, E, Li S, Lovin, DD, Mao, C, Mauceli, E, Menck, CF, Miller, JR, Montgomery, P, Mori, A, Nascimento, AL, Naveira, HF, Nusbaum, C, O'leary, SB, Orvis, J, Perteu, M, Quesneville, H, Reidenbach, KR, Rogers, YH, Roth, CW, Schneider, JR, Schatz, M, Shumway, M, Stanke, M, Stinson, EO, Tubio, JM, Vanzee, JP, Verjovski-Almeida, S, Werner, D, White, O, Wyder, S, Zeng, Q, Zhao, Q, Zhao, Y, Hill, CA, Raikhel, AS, Soares, MB, Knudson, DL, Lee, NH, Galagan, J, Salzberg, SL, Paulsen, IT, **Dimopoulos, G**, Collins, FH, Bruce, B, Fraser-Liggett, CM, Severson, DW. (2007) Genome sequence of *Aedes aegypti*, a major arbovirus vector. *Science*, 316:1718-1723.

Warr, E, Aguilar, R, Dong, Y. and **Dimopoulos, G**. (2007) Transcriptome and proteome dissection of the *Anopheles gambiae* midgut. *BMC Genomics*, 8:37.

Warr, E, Lambrechts, L, Bourgouin C, Koella, J, and **Dimopoulos, G**. (2006) Melanization of Sephadex Beads in *Anopheles gambiae* is controlled by anti-*Plasmodium* immune factors. *Insect Biochemistry and Molecular Biology*, 36:769-778

Baton, L, Dong, Y, Li, J. and **Dimopoulos, G**. (2006) Variation in mosquito immunity to *Plasmodium*. *Proceedings of the 11th International Congress of Parasitology*.

Mair G, Braks J.A.M, Garver L, Wiegant J.K.A.G, Hall Dirks, R.W, Khan S.M, **Dimopoulos, G**, Janse C.J, Waters A.P. (2006) Regulation of sexual development of *Plasmodium* by translational repression. *Science*, 313(5787):667-669.

Dong Y, Taylor H.E, and **Dimopoulos, G**. (2006) AgDscam, a hyper variable immunoglobulin domain containing receptor of the *Anopheles gambiae* innate immune system. *PLoS Biology* 4: e229.

Dong Y, Aguilar R, Xi Z, Warr E, Mongin E, and **Dimopoulos, G**. (2006) *Anopheles gambiae* immune responses to human and rodent *Plasmodium* parasite species. *PLoS Pathogens* 6: 1-13.

Heard NA, Holmes CC, Stephens DA, Hand DJ and **Dimopoulos, G** (2005) Bayesian Co-clustering of *Anopheles* Gene Expression Time Series: A Study of Immune Defense Response To Multiple Experimental Challenges. *Proc Natl Acad Sci U S A* 102:16939-16944.

Aguilar R, Dong Y, Warr E and **Dimopoulos, G**. (2005) *Anopheles* infection responses: laboratory models versus field malaria transmission systems. *Acta Tropica* 95(3):285-291.

Xu, XJ, Dong, Y, Abraham, EG, Kocan, A, Srinivasan, P, Sinden, RE, Ribeiro, JMC, Jacobs-Lorena, M, Kafatos, FC, and **Dimopoulos, G**. (2005) Transcriptome analysis of *Anopheles stephensi-Plasmodium berghei* interactions. *Mol Biochem Parasitol*. 142:76-87.

Both, M, Eckert, SE, Csukai, M, **Dimopoulos, G**, Spanu PD. (2005) Transcript profiles of *Blumeria graminis* development during infection reveal a cluster of genes that are potential virulence determinants. *Molecular Plant-Microbe Interactions*. 18(2):125-133.

Aguilar, R, Jedlicka, AE, Mintz, M, Mahairaki, V, Scott AL, and **Dimopoulos, G**. (2005) Global gene expression analysis of *Anopheles gambiae* responses to microbial challenge. *Insect Biochem Mol Biol*. ;35:709-719.

Abraham EG, Islam S, Srinivasan P, Ghosh AK, Valenzuela JG, Ribeiro LMC, Kafatos FC, **Dimopoulos, G.** and Jacobs-Lorena M. (2004) Analysis of the Plasmodium and Anopheles transcriptional repertoire during ookinete development and midgut invasion. *J Biol Chem.* 279: 5573-5580.

Srinivasan P, Abraham EG, Ghosh AK, Valenzuela J, Ribeiro JMC, **Dimopoulos, G.**, Kafatos FC, Adams JH, Fujioka J and Jacobs-Lorena M. (2004) Analysis of The Plasmodium and ANOPHELES transcriptomes during oocyst differentiation. *J Biol Chem.* 279: 5581-5587.

Wu MH, **Dimopoulos, G.**, Mantalaris A, Varley J. (2003) The effect of hyperosmotic pressure on the antibody production and gene expression of GS-NS0 cell line. *Biotechnol Appl Biochem.* Nov 13.

Kumar S, Christophides GK, Cantera R, Charles B, Soon HY, Meister P, **Dimopoulos, G.**, Kafatos FC, Barillas-Mury C. (2003) The role of Reactive Oxygen Species (ROS) on *Plasmodium* melanotic encapsulation in *Anophele gambiae*. *Proc. Natl. Acad. Sci. USA.* 100: 14139- 14144.

Dessens, JT, Sidén-Kiamos, I, Jmendoza, J, Mahairaki, V, Khater, E, Vlachou, D, Xu, JX, Kafatos, FC, Louis, C, **Dimopoulos, G.** and Sinden, RE. (2003) SOAP, a novel malaria ookinete protein involved in mosquito midgut invasion and oocyst development. *Cell. Microbiol, Mol Microbiol.* 49:319-329.

Dimopoulos, G. (2003) Insect immunity and its implication in mosquito-malaria interactions. *Microreview Cell Microbiol.*5: 3-14.

Christophides GK, Zdobnov E, Barillas-Mury C, Birney E, Blandin S, Blass C, Brey PT, Collins FH, Danielli A, **Dimopoulos, G.**, *et al.*, (2002) Immunity-related genes and gene families in *Anopheles gambiae*. *Science* 298:159-165.

Zdobnov EM, von Mering C, Letunic I, Torrents D, Suyama M, Copley RR, Christophides GK, Thomasova D, Holt RA, Subramanian GM, Mueller HM, **Dimopoulos, G.**, *etal.*, (2002) Comparative genome and proteome analysis of *Anopheles gambiae* and *Drosophila melanogaster*. *Science* 298: 149-159.

Dimopoulos, G., Christophides GK, Meister S, Schultz J, White KP, Barillas-Mury C. and Kafatos FC. (2002) Genome expression analysis of *Anopheles gambiae*: Responses to injury, bacterial challenge and malaria infection. *Proc. Natl. Acad. Sci. USA.* 99:8814-8819.

Dimopoulos, G., Kafatos F.C, Waters A.P, Sinden R.E. (2002) Malaria Parasites and the *Anopheles* Mosquito. in Chemical Immunology Vol. 80 „Malaria Immunology“ 2nd, pp. 27-49.

Zhang, D, **Dimopoulos, G.**, Wolf, A, Minana, B, Kafatos, F.C. and Winzerling, J. (2002) Cloning and molecular characterization of two mosquito iron regulatory protein 1 genes. *Insect Biochem Mol Biol.* 32, 579-589.

Tomas, A.M, Margos G, **Dimopoulos, G.**, van Lin L.H.M, Sinha R, Lupetti P, Beetsma A.L, Rodriguez M.C, de Koning-Ward T.F, Karras M, Hager A, Mendoza J, Butcher G.A, Kafatos F.C, Janse C.J, Waters A.P, and Sinden R.E. (2001) Successful Transmission of the Malarial

Parasite through the Mosquito Requires the Expression of P25 or P28: Bifunctional, Conserved, Mutually Redundant Ookinete Surface Proteins. *EMBO J.* 20, 3975-83.

Vizioli, J, Bulet, P, Hoffmann, J.A, Kafatos, F.C, Müller, H-M and **Dimopoulos, G.** (2001) Gambicin: a novel immune responsive antimicrobial peptide from the malaria vector *Anopheles gambiae*. *Proc Natl Acad Sci U S A* 98:12630-12635.

Dimopoulos, G., Müller, H-M, Levashina, E.A. and F.C. Kafatos (2001) Innate immune defense against malaria infection in the mosquito. *Curr. Opin. Immunol.* 13, 79-88.

Dimopoulos, G., Casavant, L, Chang, S, Scheetz, T, Roberts, C, Donohue, M, Schultz, J, Benes, V, Bork, P, Ansorge, W, Soares, B. and Kafatos, F. C. (2000) *Anopheles gambiae* pilot gene discovery project: Identification of novel mosquito innate immunity genes from ESTs generated from immune competent cell lines. *Proc. Natl. Acad. Sci. USA* 97, 6619-6624.

Vizioli, J, Bulet, P, Lowenberger, C, Blass, C, Müller, H.-M, **Dimopoulos, G.**, Hoffmann, J, Kafatos, F.C. and Richman, A. (2000) Cloning and analysis of a cecropin gene from the malaria vector mosquito *Anopheles gambiae*. *Insect Mol. Biol.* 9(1), 75 - 84.

Müller, H.-M, **Dimopoulos, G.**, Blass, C. and Kafatos, F.C. (1999) A hemocyte-like cell line established from the malaria vector *Anopheles gambiae* expresses six prophenoloxidase genes. *J. Biol. Chem.*, 274, 11727-11735.

Dimopoulos, G., Müller, H.-M. and Kafatos, F.C. (1999) How does *Anopheles gambiae* kill malaria parasites ? *Parassitologia*, **41**, 169-175.

Arcà, B, Lombardo, F, de Lara Capurro Guimarães, M, della Torre, A, Spanos, L, **Dimopoulos, G.**, Louis, C, James. A. A. and Coluzzi, M. (1999) Salivary gland-specific gene expression in the malaria vector *Anopheles gambiae*. *Parassitologia* 41:483-487.

Shen, Z, **Dimopoulos, G.**, Kafatos, F.C. and Jacobs-Lorena, M. (1999) A cell surface mucin specifically expressed in the midgut of the malaria mosquito *Anopheles gambiae*. *Proc. Natl. Acad. Sci. USA*, 96, 6510-6515.

Dessens, J.T, Beetsma, A.L, **Dimopoulos, G.**, Wengelnik, K, Crisanti, A, Kafatos, F.C. and Sinden, R.E. (1999). CTPR is essential for mosquito infection by malaria ookinetes. *EMBO J.* 18, 6221-6227.

Arcà, B, Lombardo, F, de Lara Capurro Guimarães, M, della Torre, A, **Dimopoulos, G.**, James. A. A. and Coluzzi, M. (1999) Trapping cDNAs encoding secreted proteins from the salivary glands of the malaria vector *Anopheles gambiae*. *Proc. Natl. Acad. Sci. USA* 96, 1516-1521.

Dimopoulos, G., Seeley, D, Wolf A. and Kafatos, F. C. (1998) Malaria infection of the mosquito *Anopheles gambiae* activates immune responsive genes during critical transition stages of the parasite life cycle. *EMBO J.* 17, 6115-6123.

Thompson J, Richman A, Barillas-Mury C, **Dimopoulos, G.**, Loukeris T.G, Müller H.-M, Wang R, Zheng L, Kafatos F.C. (1998) Immune responses of *Anopheles gambiae* and mosquito/parasite interactions. In "Strategies for Microbial Persistence" contributions from Nobel Symposium 106 on "Intracellular and Persistent Infections" June 7-10, 1998.

Richman, A, **Dimopoulos, G**, Seeley, D. and Kafatos, F. C. (1997) *Plasmodium* activates the innate immune response of *Anopheles gambiae* mosquitoes. *EMBO J.* 16, 6114-6119.

Dimopoulos, G, Richman, A, Müller, H.-M. and Kafatos, F. C. (1997) Molecular immune responses of the mosquito *Anopheles gambiae* to bacteria and malaria parasites. *Proc. Natl. Acad. Sci. USA*, 94, 11508-11513.

Dimopoulos, G, and Louis, C. (1997) Differential display of mRNA. in *The molecular biology of disease vectors, a methods manual*. eds. Crampton, J. M, Beard, C. B. and Louis, C. (Chapman & Hall, London), 261-267

Dimopoulos, G, Richman, A, della Torre, A, Kafatos, F. C, and Louis, C. (1996) Identification and characterization of differentially expressed cDNAs of the vector mosquito, *Anopheles gambiae*. *Proc. Natl. Acad. Sci USA*, 93, 13066-13071.

Dimopoulos, G, della Torre, A, Kumar, V, Kafatos, F. C, and Louis, C. (1996) Integrated Genetic Map of *Anopheles gambiae*: use of RAPD Polymorphisms for Genetic, Cytogenetic and STS landmarks. *Genetics*, 143, 953-960.

Favia, G, **Dimopoulos, G**, della Torre, A, Toure', Y. T, Coluzzi, M, and Louis, C. (1994) "Polymorphisms detected by random PCR distinguish between different chromosomal forms of *Anopheles gambiae*" *Proc. Natl. Acad. Sci. USA* 91, 10315-10319.

Favia, G, **Dimopoulos, G**, and Louis, C. (1994) "Analysis of the *Anopheles gambiae* genome using RAPD markers" *Insect Mol. Biol.* 3, 149-157.

CURRICULUM VITAE
George Dimopoulos
PART II

TEACHING

Project & Thesis supervision

- Mr. Supitpong, Wongsaroj, B.S. Thesis Title: Analysis of mosquito salivary gland gene expression.
- Mr. Choi, Young-jun, M.S. Thesis Title: Analysis of the Anopheles salivary gland transcriptome.
- Mr. Giuliani, Jonato, M.S. Thesis Title: Microarray analyses of hepatocyte responses to Plasmodium infection.
- Mr. Holladay, Andrew, M.S. Thesis Title: Establishment of a microarray assay to monitor liver cell line response to Plasmodium circumsporozoite protein.
- Ms. Vlissidou, Isabella, M.S. Thesis Title: Microarray gene expression of the sporozoite stage.
- Ms. Lindsey Garver, graduate student at MMI, 1st rotation.
- Ms. Eva Tse, graduate student at MMI, 1st rotation.
- Ms. Lindsey Garver, graduate student in my laboratory.
- Ms. Katy Shaw, graduate student at MMI, 2nd rotation.
- Mr. Jose Luis Ramirez, graduate student in my laboratory.
- Ms. Shuzhen Sim, graduate student in my laboratory.
- Mr. Sean Evans, graduate student at MMI, 2nd rotation.

Tutoring

- Six undergraduate biochemistry students at Imperial College London, Department of Biological Sciences
- Ms. Makeda Robinson, undergraduate student, JHU.

Classroom Instruction

Lecturing at Imperial College London, Department of Biological Sciences:

- First year undergraduate lectures in eukaryotic gene structure and RNA processing.
- Final year undergraduate lectures in molecular entomology.
- Master degree lectures in genomic and transcriptomic analysis for drug discovery.
- Master degree lectures in microarray analysis.

Lecturing at Johns Hopkins University, School of Public Health:

- Master degree lectures in Control, Surveillance and Molecular Approaches for the Vector
Biology and Vector-Borne Diseases Course
- Master degree lecture in Innate Immunity for the Graduate Immunology: The Immune Response Course
- Master degree lecture in Public Health Perspectives Class
- Course convener of the Molecular Entomology Course 260.664.01, 4th term 2005, 2007 and 2008.

Guest Lectures

Graduate course lecture on mosquito immunity to *Plasmodium*, Yale School of Medicine, School of Public Health. 01/2007.

Graduate course lecture in Molecular Biology of *Plasmodium* – *Anopheles* interactions, at University of Maryland, School of Medicine. 12/2004, 09/2005 and 10/2006.

WHO/TDR sponsored course in Functional Genomics of Disease Vectors, Bangkok, Thailand. 01/2005, 06/2005 and 09/2006.

Instructor of the MacArthur foundation / WHO-TDR sponsored international course on the Biology of Disease Vectors held at the Mahidol University, Bangkok, Thailand 07/2005.

Instructor at the Infectious Disease course at the Gulbenkian Institute, Lisbon, Portugal, 01/2003.

Instructor at the EMBO Practical Course: DNA Microarrays, Applications and data Analysis. European Molecular Biology Laboratory, Heidelberg, 10/ 2000.

Instructor at the EMBO Practical Course: Genome Analysis by High Throughput Techniques. European Molecular Biology Laboratory, Heidelberg, 12/ 2000.

Instructor during the MacArthur foundation sponsored international course on the Biology of Disease Vectors held at the Institute of Molecular Biology and Biotechnology, Crete, Greece 07/1994.

RESEARCH GRANT PARTICIPATION

“*Characterization of Immune responses in Anopheles arabiensis*” Pilot Project Grant Award from the Malaria research Institute, Johns Hopkins Bloomberg School of Public health. Principal Investigator: George Dimopoulos. Amount: \$85,000: 09/2006 –. Main Objective: Assess transcriptomic and immune responsive diversity between lab strain and different field populations of *A. gambiae*. Principal Responsibilities: Project management and supervision of staff.

“Transcriptomic analysis of the Relish controlled Immune Pathway in *Aedes aegypti*” NIH RO1 Principal Investigator: Alex Raikhel, UC Riverside; Subcontract PI: George Dimopoulos; \$110,475/y. EFFORT: 10%: 01/01/05 – 31/12/08. Main Objective: To identify effector genes that are regulated by the Rel-1 immunity transcription factor and assess the relation between Rel-1 immune pathway and defense against different microbes.

“*Anopheles* responses to *Plasmodium* infected blood” NIH/NIAID1R01AI061576-01A1. Principal Investigator: George Dimopoulos: \$250,000/year. EFFORT: 60%: 09/30/2005 - 03/31/2010. Main Objective: To characterize and dissect the *A. gambiae* transcriptomic responses to the different components of infected blood that differentiates it from healthy blood.

“*Characterization of a Pattern Recognition Receptor Family in Anopheles gambiae: Implication of GNBP in the Mosquito’s Molecular Defense Against Malaria*” Ref#: ID-NS-0194-04. Ellison Medical Foundation Foundation, New Scholar Award in Global Infectious Disease. Principal Investigator: George Dimopoulos. Amount: \$50,000/year, renewable for 4 years: 08/2004 – 07/2008. Main Objective: Molecular characterization of the gram negative bacteria binding protein family in *A. gambiae* and assessment of its implication in defence against *Plasmodium*.

“*Development of an Anopheles gambiae/Plasmodium berghei Microarray*” JHU/JHSPH Faculty Innovation Fund Award. Principal Investigator: George Dimopoulos. Amount:\$34,250: 01/2005 Main Objective: To design and construct an oligonucleotide microarray for *A. gambiae* and *P. berghei* using Agilent Technologies SurePrint technology.

“Transcriptome and Immune response diversity in Anopheles gambiae” Pilot Project Grant Award from the Malaria research Institute, Johns Hopkins Bloomberg School of Public health. Principal Investigator: George Dimopoulos. Amount: \$78,400/year, renewable for 2 years: 03/2004 – 02/2006. Main Objective: Assess transcriptomic and immune responsive diversity between lab strain and different field populations of *A. gambiae*. Principal Responsibilities: Project management and supervision of staff.

“Genome expression analysis of mosquito salivary gland function and characterization of specific promoters” Ref. A20338. WHO/TDR. Principal Investigator: George Dimopoulos. Amount: \$40,000/year, renewable for 3 years: Main Objective: Dissection of the mosquito salivary gland transcriptome and identification and analysis of salivary gland specific promoters. Principal Responsibilities: Project management and supervision of staff.

“Plasmodium falciparum in Anopheles gambiae: Structure/function analysis of parasite molecules mediating critical ookinete – midgut interactions” Ref# 066452. 06/2002-05/2005. Wellcome Trust. Principal Investigator: Dr. Robert E. Sinden. Amount: £240,000. Main Objective: Isolation and functional analyses of Plasmodium proteins implicated in midgut invasion. Principal Responsibilities: Microarray analyses of Plasmodium development in the mosquito midgut.

“A versatile equipment set for high throughput genome analysis and bioassays” Ref# 065812/Z/01Z. 06/2002, Wellcome Trust. Principal Investigator: George Dimopoulos. Amount: £63,000. Main Objective: Establishment of a microarray facility. Principal Responsibilities: management of the facility.

“Global expression analysis of mosquito species and population specific responses to malaria infection: towards an understanding of mosquito permissiveness to malaria infection” Ref# 068188. Wellcome Trust. Principal investigator: George Dimopoulos. Amount: £179,780. Main Objective: defining and dissecting mechanisms responsible for determining mosquito permissiveness to Plasmodium infection. Principal Responsibilities: Project management and supervision of staff. [this grant was not activated due to GDs relocation to the U.S.A.]

“Implication of mosquito peptidoglycan recognition proteins in immune regulation and anti-malarial defence” Ref. 28/S18950.AS. Biotechnology and Biological Sciences Research Council (BBSRC). Principal Investigator. Amount: £248,000. Main Objective: Analysis of PGRP function in mosquito immune response activation upon Plasmodium infection. Principal Responsibilities: Project management and supervision of staff. [the principal investigator status of this grant was swapped with Prof. A. Crisanti due to GDs relocation to the U.S.A.]

PRESENTATIONS

Scientific Meetings

Invited speaker at the “23rd International Congress of Entomology”, Durban, South Africa, July 2008.

Invited speaker at the “Symposium Global Health through Research”, Center for Tropical and Emerging Global Disease, University of Georgia, Athens, September 2008.

Invited speaker at the “Second International Conference on Dengue and Dengue Haemorrhagic Fever” Phuket, Thailand, October 2008.

Invited speaker at the “HIV, Viruses and their Hosts: A Systems Biology Approach” meeting, Institute for Advanced Study, Princeton, October 2008.

Chair and speaker at the “Pathogen control by the innate immune system of mosquito disease vectors” symposium at the American Society of Tropical Medicine and Hygiene 55th Annual Meeting in Philadelphia, PA, November 2007.

Invited speaker at the “International Congress of Insect Biotechnology and Industry” Daegu, Republic of KOREA, August 2007.

Invited speaker at the congress “From Alaska to Chiapas: First North American Parasitology Congress”, Mérida, México, June 2007.

Invited speaker at the European Science Foundation Conference on "The impact of the environment on innate immunity", Obergurgl, Austria, April 2007.

Invited speaker at the “Cologne Spring Meeting on Pathogens, Evolution and Immunity”, Cologne, Germany, February 2007.

Chair and speaker at the “Pathogen control by the innate immune system of mosquito disease vectors” symposium at the American Society of Tropical Medicine and Hygiene 55th Annual Meeting in Atlanta, GA, November 2005.

Invited speaker at the “11th International Congress on Parasitology”, Glasgow, UK, August 2006.

Invited participant at the Burroughs Wellcome Fund 2006 Summer Conference, “Person, Place, or Thing – the Fluid Roles of Host, Microbe, and Environment in Infectious Diseases” Vancouver, B.C. August 2006.

Invited speaker at the “Fifth International Symposium on Molecular Insect Science”, Tucson Arizona, May 2006.

Invited speaker at the “The *Anopheles gambiae* genome: What has it taught so far?” symposium at the American Society of Tropical Medicine and Hygiene 54th Annual Meeting in Washington DC, December 2005.

Co-chair and speaker at the “Insect-parasite interactions” symposium at the American Society of Tropical Medicine and Hygiene 54th Annual Meeting in Washington DC, December 2005.

Invited participant at the “The National Academies Keck Futures Initiative Genomic” conference at The beckman Center, Irvine, CA. November 2005.

Presentation at the semiannual EMBO workshop on “*Anopheles* Molecular Biology and Population Biology”, Kolymbari, Crete, Greece. August 2005

Participant at the “Insect genomics: Immunity and Disease Models” at the EMBL Heidelberg, Germany, June 2005.

Invited speaker: Entomological Society of America Annual Meeting in Salt Lake City, Utah, November 2004.

Presentation at the American Society of Tropical Medicine and Hygiene Annual Meeting in Miami, Florida, November 2004.

Invited speaker: Innate immunity: bridging the gap between ecology and molecules. May 6 – 9, 2004. Ploen, Germany

Invited speaker: Keystone Symposium on Genetic Manipulation of Insects. February 3 - 8, 2004. Taos, New Mexico.

Invited speaker: Infectious Vaccines Conference, 13 -15 November 2003, Karolinska Institute, Stockholm, Sweden.

Invited speaker: The Fourth Louise Pasteur Conference on Infectious Diseases: Integrative Approaches in Microbial Pathogenesis. Institut Pasteur, 13 -16 November 2002, Paris, France.

Invited speaker: British Society for Parasitology Spring Meeting, 9-11 april, 2002 University of Salford, U.K.

Invited speaker: SYMPOSIUM: Rodent Malaria Genomics: Current Status and Future Directions. BWF/NIAID/DoD, November 15-16, 2001, Atlanta, USA.

Invited speaker: Dynamics of Forest Insect Populations Meeting. Royal Society of Entomology, 10-13 September, 2001, Aberdeen, Scotland.

Invited speaker: Keystone Symposium on *Genetic Manipulation of Insects*, 4-9 February 2001, Taos, USA.

Invited speaker, 49th Annual meeting of the American Society of Tropical medicine and Hygiene. October 29 – November 2, 2000, Huston, USA.

Invited Seminars (past 3 years only)

March 2008

Department of Microbiology, Immunology, & Pathology
Colorado State University Fort Collins

March 2008.

Seattle Biological research Institute, Seattle

April 2008

Department of Biological Sciences
Vanderbilt University, Tennessee

October 2008

Center for Shrimp Molecular Biology and Biotechnology
Mahidol University, Bangkok

October 2007

Department of Entomology,

University of New Mexico, Albuquerque

February 2005

Department of Entomology,
University of California, Riverside

ADDITIONAL INFORMATION

Research interests

Malaria is one of today's most serious diseases with a worldwide prevalence of over 400 million cases and 2 million deaths per year. My laboratory is studying interactions between the malaria parasite *Plasmodium* and its vector mosquito *Anopheles*, with a particular interest in mechanisms of the mosquito's immune system that are implicated in killing parasites. We are employing high throughput transcription analyses of thousands of mosquito genes to define and characterize mosquito response processes to components of Plasmodium infected blood. These analyses permit selection of candidate key player genes of anti-Plasmodial defense for further functional characterization. We are also studying mosquito salivary gland physiology with microarray based gene expression analyses to better understand its functions in blood feeding and transmission and to identify promoters that are suitable for expression of Plasmodiocidal proteins. For more information on our activities please visit the Dimopoulos Lab home page:
<http://jhmmi.jhsph.edu/Faculty/dimopoulos/index>

Keywords (for sorting)

Malaria, Anopheles, Plasmodium, innate immunity, transcriptomics