DAVID RASNICK, Ph.D.

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WORK EXPERIENCE:

January 2012-Present

Writing a popular version of *The Chromosomal Imbalance Theory of Cancer*.

January 2009-December 2011

The Chromosomal Imbalance Theory of Cancer, Science Publishers-CRC Press, Dec 2011.

March 2008-January 2009

Founded Chromosome Diagnostics, to introduce into the USA a highly accurate cancer diagnostic system developed in Germany. Venture went out of business when economy crashed late 2008.

Sept. 2006-January 2008

Revived Boveran, Inc. in Grand Bahama Island. Not able to obtain sufficient funding to continue.

March 2005-June 2006

Senior Researcher with the Dr. Rath Health Foundation Africa, based in South Africa. We worked closely with government and non-governmental organizations to promote natural approaches to health and disease. We have demonstrated that proper diet supplemented with vitamins and micronutrients can reverse the course of AIDS-defining diseases in chronically poor, malnourished South Africans.

March 2000-Sept. 2004

Founder of Boveran, Inc., Chief Science Officer. Developed automated fluorescence in situ hybridization (FISH) to count chromosomes in patient specimens to diagnose cancer in the high-throughput clinical labs. Boveran applied the aneuploidy-cancer work that Peter Duesberg and I have been doing at UC Berkeley.

August 1997-Present

DATE Analysis. I invented DATE analysis, which stands for Differentiation, Adaptation, Transformation, Evolution. DATE analysis is a general theory of biological transformation. It differs from metabolic control analysis in that its essential task lies in the *comparison* of related phenotypes rather than in the precise definition or description of each. In place of the daunting prospect of tracking the kinetic particulars of thousands of individual cellular components, DATE analysis considers their aggregate effects. DATE analysis demonstrates the principle that it is the fraction (γ) of the genome undergoing deferential expression (not the magnitude (π) of the deferential expression) that controls phenotypic transformation. The first use of DATE analysis provided powerful theoretical support for the 100 year-old hypothesis that the autocatalyzed progression of aneuploidy *is* carcinogenesis. DATE analysis has also been used to explain the Hayflick limit of cultured cells, the time-course of carcinogen-induced tumors in mice, the age distribution of human cancer, multi-drug resistance, the lack of immune surveillance protecting against cancer, and the failure of cancer chemotherapy. DATE analysis was

applied to published microarray data on embryonic development and differentiation, adaptation to stress, transformation (cancer), and evolution. None of the non-cancer work has been published yet.

June 1996-June 2005

Visiting Scholar, Dept. Molecular & Cell Biology, UC Berkeley. In Duesberg's lab I extended the method of Kacser and Burns for the analysis of complex biological systems at steady state to systems at least as complex as a cell up to the whole organism to explain the persistence and robustness of cancer. I call the new method DATE analysis and have used it to investigate the aneuploidy theory of cancer. I presented the foundations of DATE analysis at a NATO conference in Hungary in April 1999. We have published a number of papers on the aneuploidy theory of cancer. January 2004, Peter Duesberg and I organized a meeting, termed the 1st Conference on Aneuploidy and Cancer: Clinical and Experimental Aspects. It brought together about 70 cancer researchers at the Waterfront Plaza Hotel in Oakland. The conference evaluated the theory that aneuploidy is sufficient to cause cancer.

Jan. 1996-May 1996

Group Leader Cysteine Protease Inhibitors, Arris, South San Francisco, CA. Arris acquired Khepri December 1995. I and the majority of Khepri personnel were retained by Arris following the acquisition. Group leader is a senior position at Arris. I was responsible for a group of organic chemists, charged with inventing proprietary inhibitors of cysteine proteases that have been associated with a spectrum of tissue destroying pathologies: arthritis, cancer, osteoporosis, and infectious diseases. I helped plan the animal model studies. As a result of the acquisition, I negotiated a severance package and left Arris May 15.

1993-1995

Head of Chemistry for Khepri Pharmaceuticals, South San Francisco, CA. I setup an organic chemistry laboratory, hired chemists, initiated research programs in arthritis, cancer, osteoporosis, and infectious diseases. I directed the research efforts of the chemistry group in the design and synthesis of protease inhibitors as potential therapeutic agents. We used the latest technology: X-ray structures, homology modeling, and computer aided inhibitor design. My department also provided the organic chemistry synthesis support for many other projects throughout the company.

1991-1992: **Teacher for US Peace Corps in Papua New Guinea**

1988-1990

Director of Chemical Research for Prototek, Inc., Dublin CA. I negotiated a $4 million deal with Marion Laboratories to develop my fluoro ketone protease inhibitors as potential arthritis drugs. I directed all of the scientific aspects of the fluoro ketone arthritis project jointly undertaken between Prototek and Marion Laboratories. I put together at Prototek a team consisting of: production manager who established a GMP facility to synthesize kilogram quantities of the fluoro ketone compounds that were required for the toxicological and pharmacological evaluations necessary for FDA approval; a manager of quality assurance and control responsible for ensuring that all specifications for FDA compliance were established and met; a specific R/D facility to explore the scope of the fluoro ketone technologies.

I was also responsible for the direction of the R/D activities in the following areas: metastatic cancer, AIDS, parasitic diseases (e.g. malaria), coagulation, immunology, emphysema, antiviral agents, muscular dystrophy, and organ preservation.

1985-1988

Manager of the protease inhibitor project at Prototek, Inc. Responsibilities included: the technical and managerial direction of the protease inhibitors project—the design, synthesis, characterization and evaluation of the inhibitors; identify and hire personnel and consultants; contact pharmaceutical firms about the prospects of licensing our technology; defining and managing the budget; and finally, publish scientific data.

1980-1985

Production manager of Enzyme Systems Products (ESP). Dr. Robert Smith and I re-established ESP in Dublin, CA February 1981. The company was involved in primary research, development, and production of research and clinical materials. We developed a series of new fluorescent substrates useful in assaying the activities of a host of hydrolytic enzymes: proteases, glycosidases, mono oxygenases, phosphatases, and the like. Many of these materials have been patented. The dyes synthesized were derivatives of coumarins, quinolines, quinolones, styryl quinolines, and various complex heterocyclic compounds.

In addition to developing detecting groups, we invented a novel substrate approach which was exquisitely selective for assaying cysteine protease activity in the presence of other classes of proteases. We designed a number of reversible and irreversible inhibitors of both serine and cysteine proteases which we included in our catalog. The area of protease inhibitors was a specialty of ESP; several were evaluated for potential use as therapeutics.

1978-1980

Diagnostics Division of Abbott Laboratories. I was one of two chemists hired to establish the chemistry group in the Diagnostics Division. Responsibilities included: setting up the chemistry laboratory; hiring staff; and principally, identifying new opportunities for the application of synthetic organic chemistry to clinical diagnostic problems. In addition to directing the work of subordinates, I conducted research on the design of inhibitors and substrates for a variety of hydrolases and reductases with applications to diagnostics.

EDUCATION: 1975-1978

I received my doctorate from the Georgia Institute of Technology under the guidance of Professor James C. Powers. Professor Powers is recognized as an authority in the field of synthetic protease inhibitors. My work was primarily directed toward the design and synthesis of protease inhibitors. The result was the development of the first metalloendoprotease affinity label. My graduate work also included the development of a continuous assay for bacterial collagenase activity. I have a B.S. in chemistry and a B.S. in biology also from Georgia Tech.

OTHER ACTIVITIES

Jan 31-Februry 3, 2008

2nd Conference on Aneuploidy and Cancer

Peter Duesberg and I held the second conference on aneuploidy and cancer.

January 23–26, 2004

1st Conference on Aneuploidy and Cancer

Peter Duesberg and I organized a meeting, termed the *1st Conference on Aneuploidy and Cancer: Clinical and Experimental Aspects*. It brought together about 70 cancer researchers at the Waterfront Plaza Hotel in Oakland. The conference evaluated the theory that aneuploidy is sufficient to cause cancer. The abstracts or short papers of the participants are recorded in the *Scientific Program & Abstracts* booklet of the conference, which is available on request from the conference bureau at ssachs@uclink.berkeley.edu. An independent meeting report has since also been published (Steinberg D. Appraising aneuploidy as a cancer cause. *The Scientist* **18** 26-7, 2004). A meeting report has also been published by the organizers (Duesberg, P, Li, R., Rasnick, D, Meeting Report: Aneuploidy Approaching a Perfect Score in Predicting and Preventing Cancer: Highlights from a Conference Held in Oakland in January 2004, *Cell Cycle* **3**(6) 823-828, 2004). The proceedings of the conference will appear in *Cell Oncology*.

May 2000-2008

Advisor to the president of South Africa, Thabo Mbeki, and member of his AIDS Advisory Panel.

PUBLICATIONS

David Rasnick "AIDS drugs cause AIDS and death: Contemporary issues and controversies" in Science and the Citizen Marco Mamone Capria (ed.), pp. 237-250 Lulu (2013).

David Rasnick *The Chromosomal Imbalance Theory of Cancer: the autocatalyzed progression of aneuploidy is carcinogenesis*, Science Publishers-CRC Press, 330 pages (2011).

P. H. Duesberg, D. Mandrioli, A. McCormack, J. M. Nicholson, **D. Rasnick**, C. Fiala, C. Koehnlein, H. H. Bauer, M. Ruggiero "AIDS since 1984: No evidence for a new, viral epidemic—not even in Africa" Ital J Anat Embryol 116 (2), 73-92 (2011).

David Rasnick "DATE Analysis: A general theory of biological change applied to microarray data" Biotechnology Progress 25 (5), 1275-1288 (2009).

David Rasnick *Germ of Lies*, lulu.com (2008).

D. Rasnick and C. Fiala "But—What about Africa?" *AIDS AND THE MEDIA : AN ONLINE CONFERENCE*, **http://www.redflagsweekly.com/conferences/aids/2004_apr28.html,** April 28, 2004.

D. Rasnick "The biotechnology bubble machine" Nature Biotechnology 21 (4), 355-356 (2003).

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D. Rasnick "Aneuploidy theory explains tumor formation, the absence of immune surveillance and the failure of chemotherapy" Cancer Genetics Cytogenetics 136 (1), 66-72 (2002).

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David Rasnick *La vera storia dell' AIDS*, Spriali, Milano (2001).

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P. Duesberg and **D. Rasnick** "Aneuploidy, the somatic mutation that makes cancer a species of its own," Cell Motility and Cytoskeleton 47, 81-107 (2000).

D. Rasnick "Auto-catalyzed progression of aneuploidy explains the Hayflick limit of cultured cells, carcinogen-induced tumours in mice, and the age distribution of human cancer," Biochemical Journal 348, 497-506 (2000).

R. Li, A. Sonik, R. Stindl, **D. Rasnick**, and P. Duesberg "Aneuploidy versus gene mutation hypothesis: recent study claims mutation, but is found to support aneuploidy," Proceedings of the National Academy of Sciences (USA) 97, 3236-3241 (2000).

P. Duesberg, R. Li, **D. Rasnick,** C. Rausch, A. Willer, A. Kraemer, G. Yerganian, and R. Hehlmann "Aneuploidy precedes and segregates with chemical carcinogenesis," Cancer Genetics and Cytogenetics 119, 83-93 (2000).

D. Rasnick and P. Duesberg "Metabolic control analysis shows how aneuploidy causes cancer," in Technological and Medical Implications of Metabolic Control Analysis Cárdenas, A. J. C.-B. a. M. L., (eds.), pp. 99-107, Kluwer Academic Publishers, Dordrecht (2000).

P. H. Duesberg, R. Li, C. Rausch, G. Yerganian, R. Hehlmann, **D. Rasnick** "Mechanism of carcinogenesis by polycyclic hydrocarbons: aneuploidy precedes transformation and is found in all tumours" in Technological and Medical Implications of Metabolic Control Analysis Cornish-Bowden, A. & Cardenas, M. L., (eds.), pp. 83-98 Kluwer Academic Publishers, Dordrecht (2000).

P. Duesberg, **D. Rasnick**, R.Li, L. Winters, C.Rausch, R Hehlmann, "How aneuploidy may cause cancer and genetic instability," *In:* What is cancer?, R. Root-Bernstein and W. Den Otter (eds.), Theories on carcinogenesis, Kapandriti, Greece: Anticancer Research 19, 4887-4906 (1999).

D. Rasnick and P. H. Duesberg, "How Aneuploidy Affects Metabolic Control And Causes Cancer," Biochemical Journal 340, 621 (1999).

P. H. Duesberg, C. Rausch, **D. Rasnick**, and R. Hehlmann, "Genetic Instability of Cancer Cells is Proportional to Their Degree of Aneuploidy." Proceedings of the National Academy of Sciences (US) 95, 13692-13697 (1998).

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J. R. Garrett, K. Kyriacon, **D. Rasnick**, and R. E. Smith, "A New Direct Fluorescent Method for Protease Histochemistry Using Amino Styryl-Quinoline as Leaving Group," J. Microscopy 136, RPI (1984).

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