

# Noel G. Rudie, Ph.D.

## EXPERIENCE

### *SoyLink LLC (2002 –2009)*

#### *Vice President of Research and Operations*

- Led R&D and Operations from soy powder concept through process development, optimization, customer prototype development and technical sales.
- Developed a range of new soy powders for use in desserts, beverages, and nutrition bars.
- Developed edible bean powders for the gluten free market (patent applied for 2005)
- Improved plant capacity from 800 lbs/hr to 1700 lbs/hr while improving the quality of SoyLink's signature 1000 mesh soy powders (first patent issued 2006, second applied for 2006).
- Partner with major food consumer products companies to support product development through all phases, including formula costing support, protocept generation, bench and pilot scale-up and commercialization as requested.
- Provided technical scale-up solution for successful formulation and processing of gluten free pasta.

### *Opta Food Ingredients, Inc. (1998 – 2002)*

#### *Director, Research & Development*

- Led cross functional team including R&D, Applications, Operations, and Sales in commercialization of a new starch ingredient for use as a stabilizer in cultured dairy products, Opta<sup>®</sup> KP, Patent Applied For (2002)
- Led project and cross functional team including Marketing, Sales, R&D, Applications, Engineering and Operations in commercialization of a new starch ingredient for natural cheese, OptaMax (1999)
- Led project to modify manufacturing process for Opta oat fiber bringing peroxide levels under control (2001)
- Led project delivering bleached wheat bran to a major cereal manufacturer (2000-2001)
- Developed technologies to improve the opacity and acceptability of skim milk using cross-linked casein or milk protein co-accervates. Patents applied for (2001)
- Developed technology to incorporate sterols into salad dressings for East Coast salad dressing manufacturer. (patent issued 2001)
- Developed second generation cost improved process for production of wheat gluten Baking Gloss. (2000)
- Managed a staff of 4 scientists

### *Kraft Foods Inc. (1988-1998)*

#### *Section Manager, Ingredient Technology (1994 - 1998)*

- Led group of 12 scientists supporting brand maintenance and productivity related to fats, oils and fat replacers.
- Revised fat composition on Post Cereals Waffle Crisp, which led to a one hundred percent reduction in consumer complaints.
- Led group in creation of reduced calorie fats for product evaluation. Responsible for benchtop processing and scale-up.
- Synthetic process for production of sucrose polyesters as fat substitutes. Responsible for administration, portions of scale-up and SFC analytical methods.
- Organized the Philip Morris Companies Worldwide Biochemistry Conference (1996)

***Section Manager, Flavor Chemistry (1993 - 1994)***

- Flavor SRI viscous flavor project leader developing Emulsion Concentrates for generation 5 flavor system
- Technical evaluation of flavor suppliers for preferred supplier status.
- Administered second generation debittered cheese tasant (CT2) enzyme modified cheese through commercialization.

***Section Manager, Lipid Science (1991 - 1993)***

- Led project developing an alternative enzyme process for producing interesterified low saturate oils.
- Fats and Oils Thrust Leader. Lead program to develop Oils for nutrition research to identify lead second-generation designer oil.
- Administered project for the production, isolation and purification of omega-3 fatty acids (EPA) from microorganisms.
- Led program developing Medium Chain Triglyceride for use in chocolate chips
- Administered project to develop Rennet as an effective stabilizer for both Breyers Light and Frozen Yogurt. Pilot plant trials proved Rennet effective in both of these products.

***Section Manager, Biotechnology (1989 - 1991)***

- Managed project producing Siderophore antioxidants.
- Lead project developing FTIR vinegar process monitoring and control system first for bench top use and later implementation in the Champaign manufacturing facility.
- Administered project to create two proprietary cold sensitive yeast strains for use in refrigeration stable pastry products.
- Administered project to develop a Bromate Replacer for Dough Improvement. Glucose oxidase used as a bromate replacer.
- Developed Kraft position paper on pesticides in agriculture. (1991)
- Waste Management Thrust Leader. KGF and Technology strategies on whey lactose utilization.
- Lead program developing Polylactic Acid Polymers Joint Venture Assessment (1991)
- Lead program developing Omega-3 Fatty Acids Assessment
- Safety Co-Chairman 1989 resulting in over 1 year and a million hours without a lost time accident in Technology.
- Administered project demonstrating that Xanthan self-production has the potential to generate cost savings. A proprietary lactose utilizing culture has been developed.

***Senior Research Scientist II, Biotechnology (1988 - 1989)***

- Process developed for production of cholesterol reduced butterfat by ethanol extraction

***Hershey Foods Corporation, (1985-1988)***

***Group Leader, Ingredients Research (1987 - 1988)***

- Improved on farm control of cocoa bean fermentation in Belize

***Senior Biochemist, Ingredients Research (1985- 1987)***

- Methods development for project to develop a basic understanding of cocoa bean fermentation

***Family Dairy Farm (1984 - 1985)***

- Responsible for dairy operation milking about 90 Holsteins and caring for 90 heifers and 100 beef.

***University of Wisconsin - Madison, School of Medicine Research Associate (1981 - 1984)***

- Progesterone Processing in Neuroendocrine Structures

***University of Pennsylvania, School of Medicine NIH Post-doctoral Fellow (1977 - 1981)***

- Nitro Analogues of Substrates for Adenylosuccinate Synthetase and Adenylosuccinate Lyase
- Chlorination of an Active Site Tyrosyl Residue in D-Amino Acid Oxidase by N-Chloro-D-Leucine
- Halogenated Amino Acids as Probes of Flavoenzyme Reduction Mechanisms

## EDUCATION

Ph.D.	1977	Biochemistry	University of Georgia, Athens
M.S.	1975	Biochemistry	University of Georgia, Athens
B.S.	1972	Biochemistry	University of Wisconsin, Madison

## PUBLICATIONS/SEMINARS/PATENTS

Noel G. Rudie, Brent Sorenson, (2006) US Continuation Patent Application "De-flavored Vegetable Powders, Methods of Making Them and Systems for Vegetable Milling" US Patent Application US 11/505,107

Noel G. Rudie, Brent Sorenson, James LeCureux, Brian Sorenson (2005) "Gluten-Free Food Products Including De-flavored Bean Powder" US Patent Application US 2007/0160728 A1

Noel G. Rudie, Brent Sorenson, (2003) "De-flavored Vegetable Powders, Methods of Making Them and Systems for Vegetable Milling" US Patent US 7,097,871 B2

James P. Lavoie; Dean J. Morris; Noel G. Rudie; Chienkuo Ronnie Yuan, (2002) "Potato Starch Compositions and Methods of Making Same" US Patent Application US 2002/0189607 A1

Chienkuo Ronnie Yuan; Noel G. Rudie, (2001) "High-Amylose Starch-Emulsifier Composition and Methods of Making", US Patent US 6,228,419 B1

Yuan, C.R., and Rudie, N.G. (2001) "Dispersible Sterol Compositions", US Patent US06190720

Shulman, M.L., Rudie, N.G., Mallee, F.M. and Duda, M.D. (2001) "Gluten-Derived Colloidal Dispersions And Edible Coatings Therefrom", US Patent US06174559

Rudie, Noel G.; Bohmont, Craig W.; Iyengar, Radha.; HARALAMPU, Steven, G; (2000) "Opacifying Agent Comprising Crosslinked Caseinate" International Patent Application Publication Number WO/2000/032055

Invited Seminar "Fats, Oils and Replacement Technology" Kraft Foods Institute of Technology (6-5-96)

Invited Seminar "Biotechnology Ingredients For Novel and Conventional Food Uses", Northwestern University, Biotechnology Department, (6-1-93)

Invited Seminar "Biotechnology and Food Safety", National Center for Food Safety and Technology, (11-5-91).

Invited Seminar "Ingredients & Foods of the Future-New Developments With Biotechnology" Food & Dairy Expo 91 Food Megatrends Conference, Chicago Illinois (10-29-91)

Invited Seminar "Biotechnology Food Ingredients for the Future" Chicago Section IFT Suppliers Night Technical Symposium, Rosemont Illinois, (11-7-90)

Karavolas, H.J., Bertics, P.J., Hodges, D., and Rudie, N.G. (1984) Progesterone "Processing in Neuroendocrine Structures", in *Metabolism of Hormonal Steroids in the Neuroendocrine Structures* (Martini, L., ed) Raven Press, NY

Porter, D.J.T., Rudie, N.G. and Bright, H.J. (1983) "Nitro Analogues of Substrates for Adenylosuccinate Synthetase and Adenylosuccinate Lyase" *Archives of Biochemistry and Biophysics* 225, 157

Rudie, N.G., Mulkerin, M.G. and Wampler, J.E. (1981) "Earthworm Bioluminescence: Characterization of High Specific Activity *Diplocardia longa* Luciferase and the Reaction it Catalyses" *Biochemistry* 20, 344

Ronchi, S., Galliano, M., Minchiotti, L., Curti, B., Rudie, N.G., Porter, D.J.T., and Bright, H.J. (1980) "An Active Site Tyrosine Containing Heptapeptide from D-Amino Acid Oxidase" *The Journal of Biological Chemistry* 255, 6044

Rudie, N.G., Porter, D.J.T., and Bright, H.J. (1980) "Chlorination of an Active Site Tyrosyl Residue in D-Amino Acid Oxidase by N-Chloro-D-Leucine" *The Journal of Biological Chemistry* 255,498

Purdy, D.E., Rudie, N.G., Porter, D.J.T. and Bright, H.J. "Ionizations Controlling Flavin Reduction in the D-Amino Acid Oxidase Reaction" presented at the 1980 meeting of the American Society of Biological Chemists and Biophysical Society

Rudie, N.G., Porter, D.J.T., and Bright, H.J. (1980) "Halogenated Amino Acids as Probes of Flavoenzyme Reduction Mechanisms" in *Flavins and Flavoproteins* (Yamano, T. and Yagi, K., eds) p 93-91, Japan Scientific Societies Press, Tokyo

Rudie, N.G. and Wampler, J.E. (1979) "A Unique Aldehyde Chemiluminescence Involving Peroxide and Copper I in Acidic DMSO" *Photochemistry and Photobiology* 29, 171

Ronchi, S., Galliano, M. Minchiotti, L., Rudie, N.G. and Bright, H.J. "Identificazione di un Residuo di Tirosina Nel Centro Attivo Della D-Aminoacido Ossidasi" presented to the Protein Group of the Italiana Biochemical Society, 1979

Rudie, N.G., Porter, D.T.J., and Bright, H.J., "Active Site Chlorination of D-Amino Acid Oxidase" presented at the Sixth International Symposium on Flavins and Flavoproteins, 1978

Rudie, N.G. and Wampler, J.E. (1978) "Earthworm Bioluminescence: Characterization of the Luminescent Cell from *Diplocardia longa*" *Comparative Biochemistry and Physiology* 59, 1

Rudie, N.G. (1977) "Studies of the Physiology and Chemistry of the Bioluminescent Earthworm *Diplocardia longa*" Ph.D. dissertation, University of Georgia, Athens, Georgia

Ohtsuka, H., Rudie, N.G. and Wampler, J.E. (1976) "Structural Identification and Synthesis of Luciferin from the Bioluminescent Earthworm, *Diplocardia longa*" *Biochemistry* 15, 1001

Rudie, N.G. and Wampler, J.E., "Chemiluminescent Oxidation by Hydrogen Peroxide of Simple Aliphatic Aldehydes in Acidic Copper I DMSO Solution" presented at the 1976 meeting of the American Society of Photobiology

Wampler, J.E. and Rudie, N.G., "Characterization of the Peroxidase Bioluminescent System of Earthworms" presented at the 1976 meeting of the American Society of Photobiology

Rudie, N.G., Ohtsuka, H. and Wampler, J.E. (1976) "Purification and Properties of Luciferin from the Bioluminescent Earthworm *Diplocardia longa*" *Photochemistry and Photobiology* 23, 71

Rudie, N.G. (1975) "The Purification, Identification and Synthesis of Luciferin from the Bioluminescent Earthworm *Diplocardia longa*" Masters thesis, University of Georgia, Athens, Georgia