

# Robert Charles Thompson

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## Employment History

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| <b>Sr Research Scientist</b>   | 2013-2017 |
| <i>Systemic Formulas, Ogden, Ut</i>  |           |
| <ul style="list-style-type: none"><li>- Develop UPLC MSMS for the testing and guided extraction of omega 3 and omega 6 fatty acids and their hydroxylated (pro-resolvin) analogs in fish and Krill oil</li><li>- Carry out glutathione oral absorption clinical trial 36 participants (unpublished)</li><li>- Develop UPLC MSMS method for use in glutathione clinical trial</li><li>- Synthesis and structural determination of novel Chromium amino acid chelate compound</li><li>- Use of XEVO TQD MSMS structural determination of novel chromium compound</li><li>- Create process for the culturing and freeze drying of anaerobic colonic microorganisms (<i>akkermansia muciniphilla</i>, <i>bacteroides ovatum</i>, <i>Faecalibacterium prausnitzii</i>)</li><li>- Purchase and Implement UPLC XEVO TQD MSMS testing system for research purposes</li></ul> |           |
| <b>Lab Manager</b>   | 2010-2013 |
| <i>Systemic Formulas, Ogden, Ut</i>  |           |
| <ul style="list-style-type: none"><li>- Oversee all laboratory operations</li><li>- Source and order all consumables and chemicals needed for laboratory operations</li><li>- Purchase and implement ICP MS instrument for use in heavy metal testing and quality control</li><li>- Create level II microbial testing lab for culturing anaerobic microorganisms (<i>akkermansia muciniphilla</i>, <i>bacteroides ovatum</i>, <i>Faecalibacterium prausnitzii</i>)</li><li>- Synthesis and structural determination of novel Chromium chelate compound</li></ul>   |           |
| <b>Research and Development Chemist</b>  | 2008-2010 |
| <i>Systemic Formulas, Ogden, Ut</i>  |           |
| <ul style="list-style-type: none"><li>- New product development</li><li>- Quality control preparation for food Gmp certification</li><li>- HPLC Analysis for vitamins and medicinal plant analyses</li><li>- HPTLC fingerprinting of botanicals, and botanical extracts</li><li>- Microbial food testing of dietary supplements (Total Plate Count, Total coliform, <i>Staphylococcus aureus</i>, <i>Escherichia coli</i>, <i>salmonella</i>, <i>pseudomonas</i>)</li></ul>  |           |
| <b>Research and Development Chemist</b>  | 2008-2010 |
| <i>Yusef Manufacturing Laboratories, Clearfield, Ut</i>  |           |
| <ul style="list-style-type: none"><li>- Development, validation, and implementation of HPLC procedures for the analysis of active sunscreen components in SPF 15 and SPF 30 lip balm and lotion sunscreen formulations.</li></ul>  |           |
| <b>Research and Development Chemist III</b>  | 2001-2008 |
| <i>Albion Advanced Nutrition, Clearfield, Ut</i>   |           |
| <ul style="list-style-type: none"><li>- New product development from bench top reaction to full scale production for new chemical compounds in mineral chelate product formulations for plant, animal, and human nutrition.</li><li>- Support for existing formulations and chemical processes.</li><li>- Use of spray drying systems used to dehydrate new and existing product formulations from bench top to full scale production.</li><li>- Contract spray dry feasibility testing.</li><li>- Review and revise patent applications for intellectual property and new product formulations.</li><li>- Poster presentation of experimental data at professional meetings.</li></ul>  |           |

- Purchase, implement, and use of HPLC system configured with Photo Diode Array and Fluorescence detection.
- Data management for all HPLC analyses.

**Group Formulations Manager** 2000-2001

*Nutraceutical International Corp., Park City, Ut*

- Manage formulations department responsible for all tableted, encapsulated and chewable product formulations as well as bulk product formulations.
- Interact with marketing, new product development and international sales departments.
- Supervision of one manager and four employees.

**Sr. Analytical Chemist** 1996-2000

*Nutraceutical International Corp., Ogden, Ut*

**Project Chemist** 1991-1995

*Solaray/Nutraceutical International Corp., Ogden, Ut*

### Education

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Bachelor of Science in Chemistry Minor in German 1989-1993

*Weber State University*

My chemistry degree certified by The American Chemical Society

### Skills

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- Excellent knowledge of General Chemistry with a special expertise in Analytical Chemistry
  - 20 years of research and development laboratory experienced in analytical method development, method validation.
  - Excellent working knowledge of organo-metallic chemistry with special expertise in metal amino chelate chemistry. Excellent working knowledge both small and large scale spray dry processes.
  - Highly skilled in Analytical High Performance Liquid Chromatography
    - 20 years' experience with HPLC/UPLC separation methods using gradient or isocratic separation methodology. Able to create, implement, Validate, and use such separation methodology for a wide variety of quantitative and qualitative applications.
    - Extensive working knowledge with use of silica, C30, C18, C8,CN, and ion exchange stationary phases.
    - Extensive working knowledge of systems configured with one or more of the following detection systems: Single/multi wavelength UV/Vis, Photo Diode Array, Fluorescence, Mass Spectra, TQD MSMS, Refractive index, Pulsed Amperometric, or Evaporative Light Scattering Detection.
    - Experienced with data management using Waters Empower and Masslynx Software
    - Experience with Hewllet Packard Chemstation Software
  - Skilled in Analytical Gas Chromatography
    - Extensive working knowledge of gas chromatography systems using capillary column separations configured with flame ionized detection, nitrogen phosphorous detection, mass spectrum detection, or electron capture detection.
    - Able to design, implement, and use gas chromatography separation systems for many different quantitative or qualitative applications.
  - Spectroscopy
    - Able to gather and interpret FT/IR, FT/Raman, UV/Visible, NMR, and Mass Spectra
  - Inductively Coupled Plasma
    - Experience with analytical ICP Atomic Emission Spectroscopy
    - Experience with analytical ICP Mass Spectroscopy
  - Thin Layer Chromatography
    - Able to design and/or implement TLC and HPTLC separation systems
  - Method validation

- Working knowledge of USP, AOAC and ICH analytical method validation guidelines
- Familiar with the current Recommended Dietary Intakes for essential nutrients as defined by the National Academy of Sciences.
- Microbiology
  - Working knowledge with bacterial susceptibility or challenge testing.
- Experienced with Microsoft Office products (Word, Excel, PowerPoint, Access)
- Skilled in the process of Spray drying with small behchtop, and large scale production systems
  - Experience in synthesis with new chemical compounds from bench top reaction to full scale production. Primary experience in organ-metallic compound synthesis (see US Patent 8,425,956 *Mixed Amino Acid/Mineral Compounds Having Improved Solubility* )

## References

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|----------------------------------|------------------------|
| • Ed Walker, PhD                 | Weber State University |
| • J. Andreas Lippert, PhD        | Weber State University |
| • Denise Kent Senior Sales Exec. | Waters Corporation     |
| • Amitabah Chandra, PhD          | Access Business Group  |

## Publications

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- United States Patent 9,433,97 B2 Powdered Drink Mix for Recovery (owner, inventor)
- United States Patent 7,946,155 (co-inventor)  
*Method for Quantitatively Determining Unbound Metal in Formulations Containing Chelates*
- United States Patent 7,582,418 (inventor)  
*Antimicrobial Chelates*
- United States Patent 8,425,956 (inventor)  
*Mixed Amino Acid/Mineral Compounds Having Improved Solubility*
- US Patent Application 20060292698-A1 (co-inventor)  
*Spectroscopic Methods for Detecting and Identifying Chelates*
- United States Patent 7,910,137 (co-inventor)  
*Metal Carnitine Chelates*
- US Patent Application 20030158171 (co-inventor)  
*Chelates and Complexes for Reduction in Alcohol Dependency*
- US Patent 6,541,045 (co-inventor)  
*Herbal Composition and Method for Combating Inflammation*
- Poster Presentation AOAC 2007 Development of a Novel Method to Quantitative the Amount of Unbound Metal in Copper Glycinate Solutions (co-Author)
- Poster Presentation AOAC 2006 Single Laboratory Validation of 10 Water soluble Vitamins in a Multi-Vitamin/Mineral Matrix using HPLC with PDA Detection (Author)
- Poster Presentation FASEB 2005 Bacterial Susceptibility of Zinc Containing Compounds with respect to Gram Positive and Gram Negative Organisms (co-Author)
- Poster Presentation AOAC 2005 Real Time Kinetic Reaction Rate of Zinc Bis-Glycinate Determined by Use of Raman Spectroscopy (Primary Author)
- Poster Presentation AOAC 2003 Short Term Stability of Water Soluble Vitamins in Solution with Respect to pH (Author)
- Poster Presentation AOAC 2003 Simultaneous Determination of Creatine, Creatinine, and Several Breakdown Products of Creatine in Dietary Supplements using HPLC with PDA Detection (author)
- LC/GC Guest Author
  - Validation Viewpoint : Striving to Validate Nutraceuticals, LCGC Volume 19 Number 11 November 2001, 1142-1149
- Pittcon 2001 Symposium, Advancing Nutraceutical Science with HPLC and LC/MS
  - Insuring Quality in the Manufacture of Nutraceuticals.