

Brendon Gill PhD MSc(hons) FAOACI

Relevant Strengths

- Practised at analytical method development; able to think analytically to deduce appropriate solutions to specific problems.
- Knowledgeable in development and implementation of Quality Assurance procedures within regulated framework for a high sample throughput laboratory.
- Strong analytical chemistry background including an understanding of chemistry, physics, and statistics well as the operation and maintenance of complex analytical instruments (LC-MS/MS, LC-UV, LC-FI, GC-FID, ICP-OES, FIA).
- Experienced in working in an ISO 17025 accredited laboratory.
- Well developed organisational, time management, planning and implementations skills to complete tasks on time.
- Able to collaborate with wide range of contacts established through regular interaction at international scientific events.
- Reliable, hard-working, and able to work as part of a team with excellent interpersonal, written and oral communication skills.

Relevant Experience

2005–present Fonterra Co-operative Group Ltd. Waitoa, NZ

Senior Research Scientist—Business Assurance and Compliance

Research Scientist—Nutritionals Laboratory

- Method development and validation of new analysis for vitamins and micronutrients in dairy products using a variety of analytical techniques.
- Project lead for drafting Fonterra Single Laboratory Validation procedures for chemical methods.
- Project lead for development of several analytical methods with ongoing annual savings > \$1.1 million/year
- Active member providing scientific expertise to several international standards organisations
- Provide scientific advice of micronutrients and their analysis to product manufacturing, regulatory, and laboratory teams
- Trained laboratory auditor, regularly perform internal and external laboratory audits to ISO 17025.
- IANZ 2.70 KTP for HPLC/UHPLC, and LC-MS instrumentation
- Developed QA/QC procedures for the chemistry laboratory.
- Regular peer-reviewer of manuscripts in the field of micronutrient analysis submitted to major dairy and analytical chemistry journals.

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| Qualifications | 2013 | Doctor of Philosophy | University of Waikato |
| | 2001 | Graduate Diploma of Teaching | University of Waikato |
| | 2000 | Master of Science (honours) | University of Waikato |
| | 1998 | Bachelor of Science | University of Waikato |

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| Recent Employment | 2014– | Fonterra | Senior Research Scientist |
| | 2005–2014 | Fonterra | Research Scientist |

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| Awards | 2018 | Kudos Awards Emerging Scientist of the Year | |
| | 2017 | NZ Business Innovation Award (finalist) | |
| | 2017 | AOAC Method of the Year Award | |
| | 2017 | AOAC Technical Service Award | |
| | 2017 | AOAC Expert Review Panel Member of the Year Award | |
| | 2015 | Fellow of AOAC International | |
| | 2015 | AOAC Expert Review Panel Member of the Year Award | |
| | 2012 | AOAC Expert Review Panel Member of the Year Award | |
| | 2007 | Bright Future Enterprise PhD Scholarship | |
| 1998 | Forest Research MSc Scholarship | | |

Official Methods

International Reference Methods:

ISO 20636-2018: *Infant Formula and Adult Nutritionals—Determination of Vitamin D by Liquid Chromatography-Mass Spectrometry*. International Standards Organisation: Geneva Switzerland. (adopted by Codex Alimentarius as ‘Type II’ reference method)

AOAC 2016.05—*Analysis of Vitamin D₂ and Vitamin D₃ in Fortified Milk Powders, Infant and Nutritional Formulas by Liquid Chromatography-Tandem Mass Spectrometry*. AOAC International: Gaithersburg, MD, USA

ISO 20638-2015: *Infant Formula—Determination of Nucleotides by Liquid Chromatography*. International Standards Organisation: Geneva Switzerland. (adopted by Codex Alimentarius as ‘Type II’ reference method)

AOAC 2011.20—*Analysis of Nucleotide 5'-Monophosphates in Infant Formulas by HPLC-UV*. AOAC International: Gaithersburg, MD, USA

National Dairy Industry Reference Methods:

NZTM3.17.52—Vitamin D in Infant Formula and Nutritional Powders

NZTM3.17.56—Biotin and Folic Acid in Dairy Products

NZTM3.19.4—Lutein in Infant Formula

NZTM3.19.3—Nucleotides in Infant Formula

NZTM3.17.5—Carnitine in Infant Formula and Nutritional Powders

Affiliations

International Standards Organisation:

New Zealand representative TC34/WG14, 2014–Present

AOAC International:

AOAC International: Fellow 2015–, (Member 2006–)

Editorial Board of the *J. AOAC Int.*: Chair 2020–, (Member 2014–2020)

Official Methods Board: Member 2018–

Nucleotides Working Group: Chair 2011–2014

SPIFAN Stakeholder Panel: Member 2011–

SPSFAM Stakeholder Panel: Member 2014–2015

SPIFAN Nutrients Expert Review Panel: Member 2011–

SPIFAN Nutrients Working Groups: Member of 13 WGs 2010–

Codex STAN 234 Expert Review Panel: Member 2018–2019

Membership committee: Co-Chair 2019–, (Member 2018–)

Fellows committee: Member 2016–

Harvey W. Wiley award committee: Member 2020–

Tellers committee: Member 2020–

Royal Society of New Zealand:

Member 2020–

New Zealand Institute of Chemistry:

Member 2006–2008, 2020–

Publications

Indyk, H.E.; ***Gill, B.D.*** (2020) The determination of intact β -casein in milk products by biosensor immunoassay. Under review.

Gill, B.D.; Wood, J.E.; Indyk, H.E. (2020) Analysis of α -tocopherol stereoisomers in dairy products by chiral chromatography. Under Review.

Gilliland, D.L.; ***Gill, B.D.***; Kissling, R.C.; Starkey, D.; Indyk, H.E.; McMahon, A.; Broek, A.P.; Crujisen, H.M.M. Assessment of regulatory compliance testing for vitamin D in infant formula—Impact of Delegated Regulation (EU) 2019/828. Under review.

Ponnal, R.P.; Wood, J.E.; ***Gill, B.D.***; Bergonia, C.A.; Longstaff, W.M.; Valerie Slabbert, V.; Bainbridge-Smith, L.C.; Crawford, R.A. Colorimetry of dairy products. Under review.

Wood, J.E.; Longstaff, W.M.; Crawford, R.A.; ***Gill, B.D.***; Lin, Y-H.; Bergonia, C.A.; Kissling, R.C.; Davis, L.M., Matuszek, A.; Indyk, H.E. Sensory evaluation of dairy products with a selective ion flow tube mass spectrometry using a chemometric approach. Under review.

Indyk, H.E.; ***Gill, B.D.***; Wei, S.; Harvey, L.; Woollard, D.C. Quantitation of vitamin K in milk products by pre-column reduction HPLC-fluorescence. Under review.

Wood, J.E.; ***Gill, B.D.***; Indyk, H.E., Rhemrev, R.; Pazdanska, M.; Mackay, N.; Marley, E. (2020) Determination of aflatoxin M1 in liquid milk, cheese, and selected milk proteins by automated online immunoaffinity clean-up with liquid chromatography-fluorescence detection. Under review.

- Gill, B.D.;** Indyk, H.E. (2020) Separation of RRR- α -tocopherol by chiral chromatography. *Journal of AOAC International*. In Press. doi.org/10.1093/jaoacint/qsaa055
- Gill, B.D.;** Indyk, H.E.; Kobayashi, T.; McGrail, I.J.; Woollard, D.C. (2020) Comparison of LC-MS/MS and enzymatic methods for the determination of total choline and total carnitine in infant formula and milk products. *Journal of AOAC International*, In Press. doi.org/10.1093/jaoacint/qsaa060
- Konings, E.J.M.; Roux, A.; Reungoat, A.; Nicod, N.; Campos-Giménez, E.; Ameze, L.; Bucheli, P.; Alloncle, S.; Dey, J.; Daix, G.; **Gill, B.D.;** Indyk, H.E.; Crawford, R.A.; Kissling, R.; Holroyd, S.E.; van Gool, M.P.; Broek, A.P.; Crujisen, H.M.; Starkey, D.E.; Thompson, J.J.; Ehling, S.; Peterson, R.; Christiansen, S.; Mandy, K.; Bradley, C.L.; Phillips, S.C.; Moulin, J. (2020) Challenge to evaluate regulatory compliance for nutrients in infant formulas with current state-of-the-art analytical reference methods. *Food Control* 119, 107423. doi.org/10.1016/j.foodcont.2020.107423
- Wood, J.E.; **Gill, B.D.;** Gujuran, G.S.; Indyk, H.E.; White, P.M. (2019) Rapid method for the determination of sorbic acid in cheese by high performance liquid chromatography. *Journal of AOAC International*. 103, 807–811. doi.org/10.1093/jaoacint/qs043
- Gill, B.D.;** Saldo, S.C.; McGrail, I.J.; Wood, J.E.; Indyk, H.E. (2019) Rapid method for the determination of thiamine and pantothenic acid in infant formula and milk-based nutritional products by liquid chromatography–tandem mass spectrometry. *Journal of AOAC International* 103, 812–817. doi.org/10.1093/jaoacint/qs034
- Gill, B.D.;** Abernethy, G.A.; Indyk, H.E.; Wood, J.E.; Woollard, D.C. (2019) Differential thermal isomerization: its role in the analysis of vitamin D₃ in foods. *Journal of AOAC International*. 103, 563–569. doi.org/10.1093/jaoacint/qs001
- Indyk, H.E.; Chetikam, S.; **Gill, B.D.;** Wood, J.E.; Woollard, D.C. (2019) Development and application of an optical biosensor immunoassay for aflatoxin M1 in bovine milk. *Food Analytical Methods* 12, 2630–2637. doi: 10.1007/s12161-019-01621-5
- Li, Y.; **Gill, B.D.;** Grainger, M.N.C.; Manley-Harris, M. (2019) The analysis of vitamin B₁₂ in milk and infant formula: A review. *International Dairy Journal* 99, 104543. doi: 10.1016/j.idairyj.2019.104543
- Woollard, D.C.; Indyk, H.E.; **Gill, B.D.** (2019) Significance of previtamin D chromatographic resolution in the accurate determination of vitamin D₃ by HPLC–UV. *Journal of Food Composition and Analysis* 79, 1–4. doi.org/10.1016/j.jfca.2019.02.010
- Gill, B.D.;** Gilliland, D.L.; Indyk, H.E.; Wood, J.E.; Woollard, D.C. (2019) Significance of thermal isomerisation on the quantitation of total vitamin D₃ in foods. *Food Analytical Methods* 12, 998–1006. doi.org/10.1007/s12161-019-01434-6
- Gill, B.D.;** Saldo, S.; Wood, J.E.; Indyk, H.E. (2018) A rapid method for the determination of biotin and folic acid in liquid milk, milk powders, infant formula, and milk-based nutritional products by liquid chromatography–tandem mass spectrometry. *Journal of AOAC International* 101, 1578–1583. doi.org/10.5740/jaoacint.18-0065

- Gill, B.D.**; Indyk, H.E. (2018) Analysis of vitamin D₂ and vitamin D₃ in infant and adult nutritional formulas by liquid chromatography-tandem mass spectrometry: A multi-laboratory testing study. *Journal of AOAC International* 101, 256–263. doi.org/10.5740/jaoacint.17-0149
- Indyk, H.E.; Hart, S.; Meerkerk, T.; **Gill, B.D.**; Woollard, D.C. (2017) The β -lactoglobulin content of bovine milk: Development and application of a biosensor immunoassay. *International Dairy Journal* 73, 68–73. doi.org/10.1016/j.idairyj.2017.05.010
- Gill, B.D.**; Abernethy, G.A.; Green, R.J.; Indyk, H.E. (2016) Analysis of vitamin D₂ and vitamin D₃ in fortified milk powders and infant and nutritional formulas by liquid chromatography-tandem mass spectrometry: Official First Action Method 2016.05. *Journal of AOAC International* 100, 298–302. doi.org/10.5740/jaoacint.2016_05
- Gill, B.D.**; Zhu, X.; Indyk, H.E. (2016) The determination of vitamin D₃ and 25-hydroxyvitamin D₃ in early lactation and seasonal bovine milk. *International Dairy Journal* 63, 29–34. doi.org/10.1016/j.idairyj.2016.07.010
- Gill, B.D.**; Abernethy, G.A.; Green, R.J.; Indyk, H.E. (2016) Analysis of vitamin D₂ and vitamin D₃ in fortified milk powders, infant and nutritional formulas by liquid chromatography-tandem mass spectrometry: First Action 2016.05. *Journal of AOAC International* 99, 1321–1330. doi.org/10.5740/jaoacint.16-0160
- Gill, B.D.**; Indyk, H.E.; Woollard, D.C. (2016) Current methods for the analysis of selected nutrients in infant formulas and adult nutritionals. *Journal of AOAC International* 99, 30–41. doi.org/10.5740/jaoacint.15-0247
- Indyk, H.E.; Saldo, S.; White, P.; Dole, M.; **Gill, B.D.**; Woollard, D.C. (2016) The free and total *myo*-inositol contents of early lactation and seasonal bovine milk. *International Dairy Journal* 56, 33–37. doi.org/10.1016/j.idairyj.2016.01.002
- Gill, B.D.**; Indyk, H.E. (2015) Analysis of nucleotide 5'-monophosphates in infant formulas by HPLC-UV: Collaborative study. *Journal of AOAC International* 98, 971–979. doi.org/10.5740/jaoacint.15-050
- Gill, B.D.**; Zhu, X.; Indyk, H.E. (2015) A rapid method for the determination of vitamin D₃ in milk and infant formula by liquid chromatography-mass spectrometry. *Journal of AOAC International* 98, 431–435. doi.org/10.5740/jaoacint.14-183
- Indyk, H.E.; **Gill, B.D.**; Woollard, D.C. (2015) An optical biosensor-based immunoassay for the determination of bovine serum albumin in milk and milk products. *International Dairy Journal* 47, 72–78. doi.org/10.1016/j.idairyj.2015.02.011
- Gill, B.D.**; Indyk, H.E.; Blake, C.J.; Konings, E.J.M.; Jacobs, W.A.; Sullivan, D. (2015) Evaluation protocol for the review of method validation data by the AOAC Stakeholder Panel on Infant Formula and Adult Nutritionals Expert Review Panel. *Journal of AOAC International* 98, 112–115. doi.org/10.5740/jaoacint.14-158
- Indyk, H.E.; **Gill, B.D.**; Broughton, J.M.; Woollard, D.C. (2014) Application of an LC-UV method to estimate lutein recovery during infant formula manufacture. *International Dairy Journal* 38, 82–86. doi.org/10.1016/j.idairyj.2014.02.010

- Indyk, H.E.; **Gill, B.D.**; Woollard, D.C. (2014) Biotin content of paediatric formulae, early lactation milk and seasonal bovine milk powders by biosensor immunoassay. *International Dairy Journal* 35, 25–31. doi.org/10.1016/j.idairyj.2013.10.002
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- Gill, B.D.**; Indyk, H.E.; Manley-Harris, M. (2012) Determination of total potentially available nucleosides in bovine, caprine, and ovine milk. *International Dairy Journal* 24, 40–43. doi.org/10.1016/j.idairyj.2011.11.011
- Gill, B.D.**; Indyk, H.E.; Kumar, M.C.; Sievwright, N.K.; Manley-Harris, M.; Dowell, D. (2012) Analysis of 5'-Mononucleotides in Infant Formula and Adult/Pediatric Nutritional Formula by Liquid Chromatography: First Action 2011.20. *Journal of AOAC International* 95, 599–602. doi.org/10.5740/jaoacint.CS2011_20
- Gill, B.D.**; Indyk, H.E.; Manley-Harris, M. (2011) Determination of total potentially available nucleosides in bovine milk. *International Dairy Journal* 21, 34–41. doi.org/10.1016/j.idairyj.2010.07.004
- Gill, B.D.**; Indyk, H.E.; Kumar, M.C.; Sievwright, N.K.; Manley-Harris, M. (2010) A liquid chromatographic method for routine analysis of 5'-mononucleotides in pediatric formulas. *Journal of AOAC International* 93, 966–973. doi.org/10.1093/jaoac/93.3.966
- Gill, B.D.**; Indyk, H.E. (2008) Liquid chromatographic method for the determination of lutein in milk and pediatric formulas. *International Dairy Journal* 18, 894–898. doi.org/10.1016/j.idairyj.2008.02.004
- Gill, B.D.**; Indyk, H.E. (2007) Determination of nucleotides and nucleosides in milks and pediatric formulas: a review. *Journal of AOAC International* 90, 1354–1364. doi.org/10.1093/jaoac/90.5.1354
- Gill, B.D.**; Indyk, H.E. (2007) Development and application of a liquid chromatographic method for analysis of nucleotides and nucleosides in milk and infant formulas. *International Dairy Journal* 17, 596–605. doi.org/10.1016/j.idairyj.2006.08.001
- Gill, B.D.**; Manley-Harris, M.; Thomson, R.A. (2003) Use of natural abundance ¹⁵N DEPT NMR to investigate curing of urea-formaldehyde resin in the presence of wood fibers. *Magnetic Resonance in Chemistry* 41, 622–625. doi.org/10.1002/mrc.1219
- AOAC SMPR 2020.000 Standard Method Performance Requirement for the determination of bovine lactoferrin in infant and adult/pediatric nutritional formula. *Official Methods of Analysis*, Rockville MD.
- AOAC SMPR 2017.006 Standard Method Performance Requirement for pantothenic acid in infant formula and adult/pediatric nutritional formula. *Official Methods of Analysis*, Rockville MD.
- AOAC SMPR 2012.010 Standard Method Performance Requirement for choline in infant formula and adult/pediatric nutritional formula. *Official Methods of Analysis*, Rockville MD.
- AOAC SMPR 2011.006 Standard Method Performance Requirement for folate in infant formula and adult/pediatric nutritional formula. *Official Methods of Analysis*, Rockville MD.

- AOAC SMPR 2011.007 Standard Method Performance Requirement for inositol in infant formula and adult/pediatric nutritional formula. *Official Methods of Analysis*, Rockville MD.
- AOAC SMPR 2011.008 Standard Method Performance Requirement for nucleotides in infant formula and adult/pediatric nutritional formula. *Official Methods of Analysis*, Rockville MD.
- AOAC SMPR 2012.009 Standard Method Performance Requirement for pantothenic acid in infant formula and adult/pediatric nutritional formula. *Official Methods of Analysis*, Rockville MD.
- AOAC SMPR 2011.003 Standard Method Performance Requirement for vitamin A in infant formula and adult/pediatric nutritional formula. *Official Methods of Analysis*, Rockville MD.
- AOAC SMPR 2015.002 Standard Method Performance Requirement for pantothenic acid in infant formula and adult/pediatric nutritional formula. *Official Methods of Analysis*, Rockville MD.
- AOAC SMPR 2011.005 Standard Method Performance Requirement for vitamin B12 in infant formula and adult/pediatric nutritional formula. *Official Methods of Analysis*, Rockville MD.
- AOAC SMPR 2011.004 Standard Method Performance Requirement for vitamin D in infant formula and adult/pediatric nutritional formula. *Official Methods of Analysis*, Rockville MD.
- AOAC SMPR 2011.010 Standard Method Performance Requirement for vitamin E in infant formula and adult/pediatric nutritional formula. *Official Methods of Analysis*, Rockville MD.
- AOAC SMPR 2014.001 Standard Method Performance Requirement for vitamin K in infant formula and adult/pediatric nutritional formula. *Official Methods of Analysis*, Rockville MD.
- AOAC SMPR 2012.002 Standard Method Performance Requirement for whey protein:casein ratio in infant formula and adult/pediatric nutritional formula. *Official Methods of Analysis*, Rockville MD.
- Gill, B.D.** (2013) *Analysis of Nucleosides and Nucleotides in Milk and Infant Formula*. PhD Thesis, University of Waikato.
- Gill, B.D.** (2000) *Analysis of Urea-Formaldehyde Resin Curing by Nitrogen-15 Nuclear Magnetic Resonance Spectroscopy*. MSc Thesis, University of Waikato.

Media

- Gill named chair-elect of AOAC editorial board. *Inside Laboratory Management*, Jul/Aug 2020, AOAC International: Rockville, MD, pp 12–14 (story by AOAC staff)
- Micronutrients in dairy products. *Inside Laboratory Management*, Jan/Feb 2020, AOAC International: Rockville, MD, pp 25–46 (story by H. Indyk, D. Woollard, & B. Gill)
- AOAC membership stories: Why AOAC? *Inside Laboratory Management*, Jul/Aug 2020, AOAC International: Rockville, MD, p 27 (story by B. Gill)
- Profiles of the Waikato regions scientists from The Kudos Trust: Dr. Brendon Gill. Video available from www.thekudos.org.nz
- Kudos for a scientific star. Story available on www.fonterra.com, Oct 15th 2018, Auckland, New Zealand (story by Fonterra staff).

Scientist earns Kudos for his work. *Matamata Chronicle*, Oct 10th 2018, Matamata, New Zealand, p13 (story by E. Hill).

Waitoa scientist appointed to board of AOAC. *Morrinsville News*, Aug 9th 2018, Morrinsville, New Zealand, pp1–2 (story by S. Glover).

First Action Official Method 2011.20 successfully completes SLV; method to proceed to multi-laboratory study. *Inside Laboratory Management*, Sept/Oct 2013, AOAC International: Gaithersburg, MD, pp 43–45 (story by B. Gill, H. Indyk, & D. Hughes).

Presentations

Analysis of α -tocopherol stereoisomers in infant formula by chiral chromatography. Oral presentation given at the Harvey W. Wiley symposium at the 134th annual AOAC International meeting & conference

SPIFAN Study Director presentation to Stakeholder Panel on method for analysis of vitamin D in infant formula. Oral presentation given at the 126th Annual AOAC International Conference, Las Vegas, NV, September 2012.

SPIFAN Nucleotides method Study Director presentation to Stakeholder Panel. Oral presentation given at the 125th Annual AOAC International Conference, New Orleans, LA, September 2011.

SPIFAN Nucleotides Working Group chair presentation to Stakeholder Panel. Oral presentation given at the 125th Annual AOAC International Conference, New Orleans, LA, September 2011.

Analysis of 5'-mononucleotides in pediatric formulas by HPLC. Poster presentation given at the 124th Annual AOAC International Conference, Orlando, FL, 2010.

Determination of total potentially available nucleosides in bovine colostrum and milk. Poster presentation given at the 123rd Annual AOAC International Conference, Philadelphia, PA, September 2009.

Liquid chromatographic method for the determination of lutein in milk and pediatric formulas. Poster presentation given at the 122nd Annual AOAC International Conference, Dallas, TX, September 2008.

Development and application of a liquid chromatographic method for analysis of nucleotides and nucleosides in milk and infant formulas. Poster presentation given at the 120th Annual AOAC International Conference, Minneapolis, MN, September 2006.

Use of natural abundance ¹⁵N DEPT NMR to investigate curing of urea–formaldehyde resin in the presence of wood fibres. Poster presentation given at the 1999 NZIC Conference, Victoria University, Wellington, New Zealand.

Interests

Chess; Poker; Lacrosse; Astronomy; Orbital mechanics; Cryptography

References

Available on request