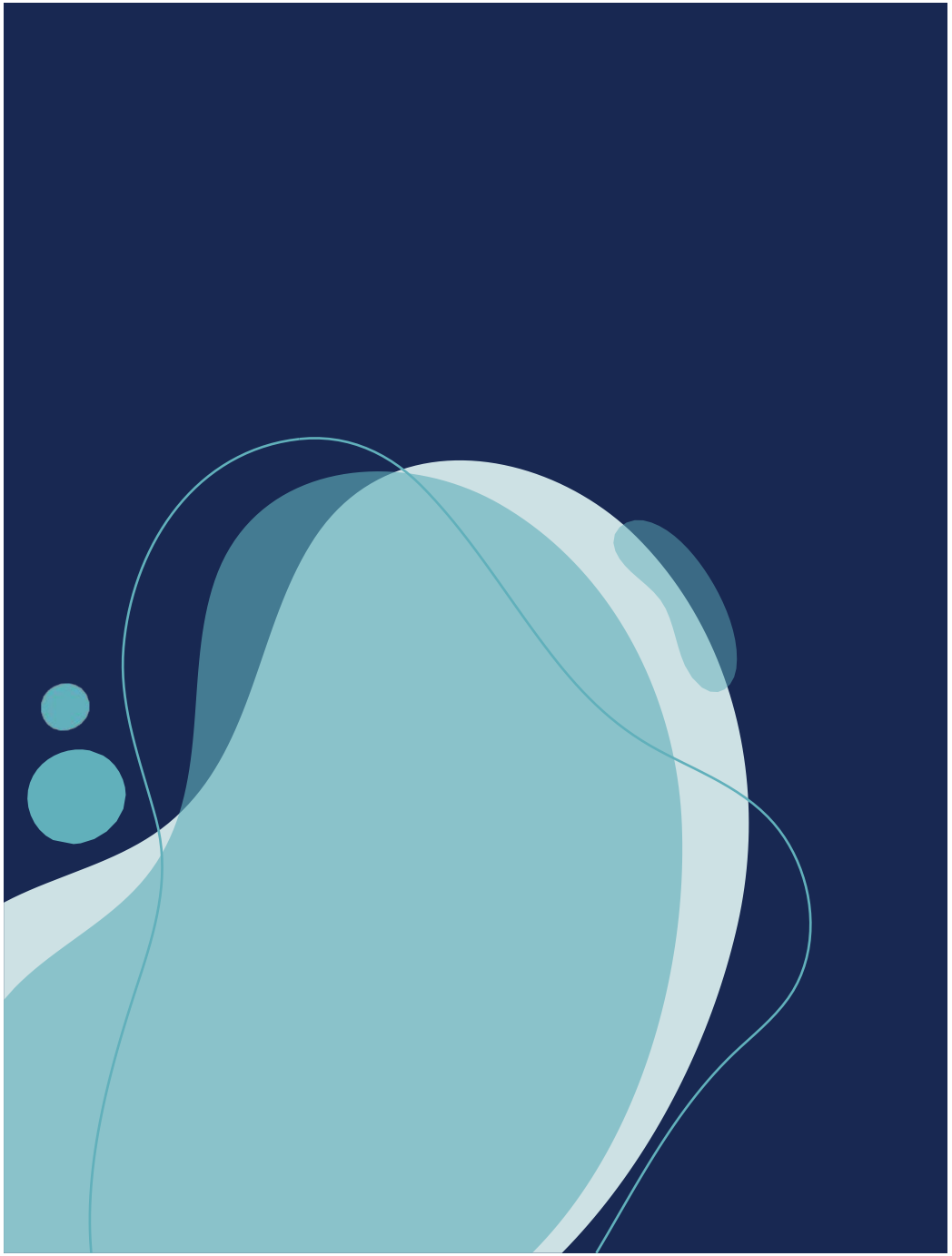
ACTIVATED PROBIOTICS™

Activated Probiotics' Clinical Update and Training Session:

Biome Iron+™ Probiotic

THURSDAY 6 FEBRUARY 2020

PRESENTERS: BLAIR NORFOLK & REBECCA EDWARDS



The Activated Probiotics® Difference

Key research partnerships

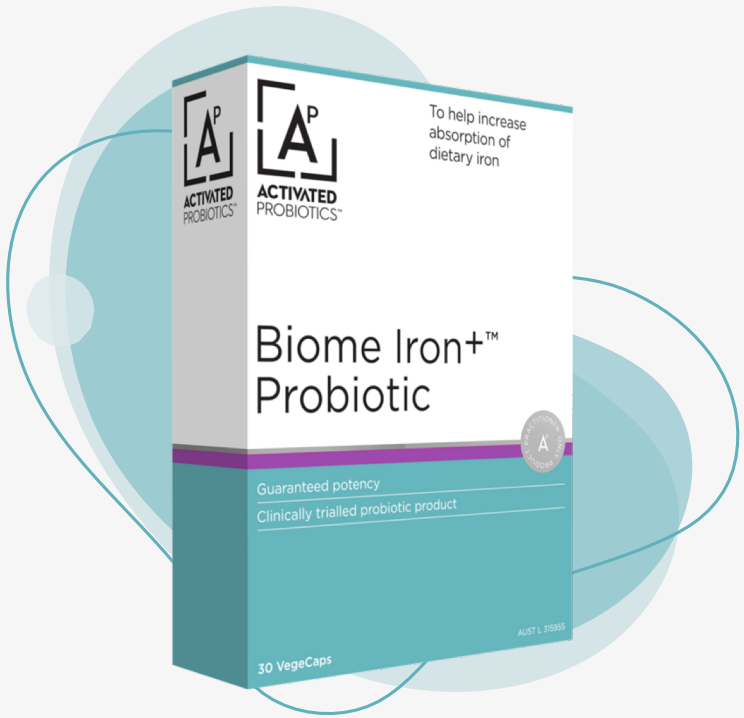
Microencapsulation

Strain selection and identification (DSM/ATCC)

Unique packaging to maintain product integrity

Biome Iron™ Probiotic

To help increase absorption of dietary iron



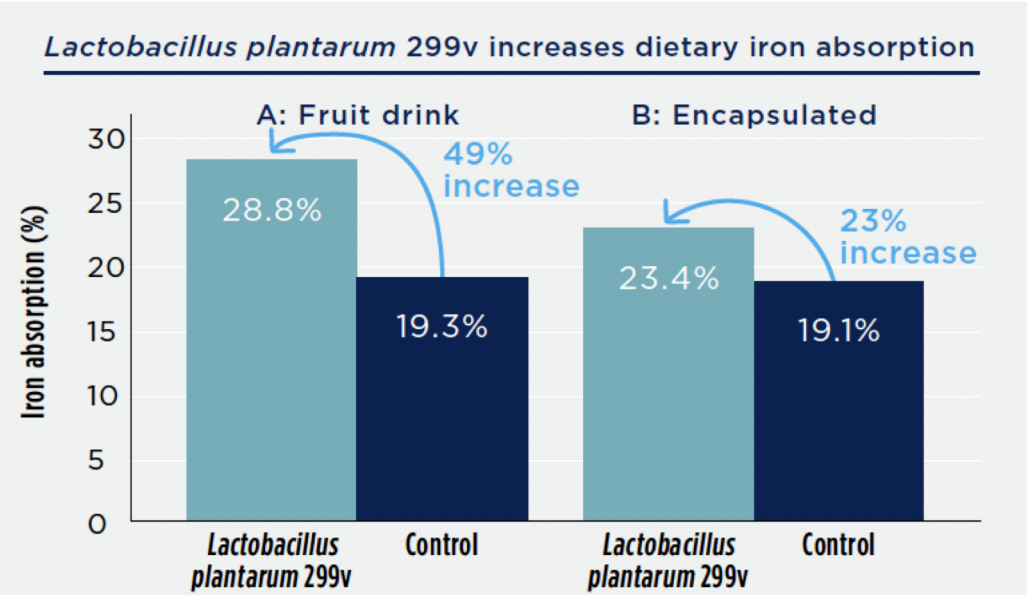
Iron deficiency in Australia

49%

Up to 49% increase in iron absorption

33%

of Australian females experience low iron to iron deficiency in anaemia



Hoppe M, Önning G, Berggren A, Hulthén L. Probiotic strain Lactobacillus plantarum 299v increases iron absorption from an iron-supplemented fruit drink: a double-isotope cross-over single-blind study in women of reproductive age. Br J Nutr. 2015 Oct 28;114(8):1195–202
Hoppe M, Önning G, Hulthén L. Freeze-dried Lactobacillus plantarum 299v increases iron absorption in young females—Double isotope sequential single-blind studies in menstruating women. van Wouwe JP, editor. PLOS ONE. 2017 Dec 13;12(12):e018914

BIOME AUSTRALIA

Probiotics & Iron Absorption

1. Non-heme iron in plant foods is less bioavailable than heme iron found only in animal protein

2. Non-heme iron exists in an oxidised form of iron called ferric iron (Fe3+) in the GIT

3. Absorption of iron via DMT-1 depends upon the reduction of ferric iron to ferrous iron:
   - Fe3+ → Fe2+

4. Reduction is facilitated by:
   - reducing agents such as ascorbic acid (vitamin C) in the intestinal lumen
   - the brush border enzyme ferrireductase (duodenal cytochrome B, DCYTB)

5. Lactic acid bacteria have been suggested to increase dietary iron absorption of non-heme iron

6. Lactobacillus plantarum 299v is thought to enhance bioavailability of non-heme iron by:
   - producing a ferric-reducing metabolite: p-hydroxy-phenyllactic acid (HLPA)
   - upregulating expression of ferrireductase

7. Both of these proposed mechanisms of action increase ferrous iron available for passage through the DMT-1 in the duodenum

Suzuki Y, Kosaka M, Shindo K, Kawasumi T, Kimoto-Nira H and Suzuki C. Identification of Antioxidants Produced by Lactobacillus plantarum, Biosci. Biotechnol. Biochem., 2013, 77, 1299–1302. | Sandberg A-S, Önning G, Engström N, Scheers N. Iron Supplements Containing Lactobacillus plantarum 299v Increase Ferric Iron and Up-regulate the Ferric Reductase DCYTB in Human Caco-2/HT29 MTX Co-Cultures. Nutrients. 2018 Dec 8;10(12):1949. | Hoppe M, Önning G, Hulthén L. Freeze-dried Lactobacillus plantarum 299v increases iron absorption in young females—Double isotope sequential single-blind studies in menstruating women. van Wouwe JP, editor. PLoS ONE. 2017 Dec 13;12(12):e0189141

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Thank You

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