MiCo Active

Advanced MICROSOMAL™ Iron

MiCo Active

- MiCo Active is developed by Japan using proprietary **Advanced MICROSOMAL™ Technology**
- MiCo Active is micronised form of iron encapsulated in a novel phospholipid coating
- MiCo Active is the only iron with evidence of absorption through microfold cells (M-cells) of the intestine

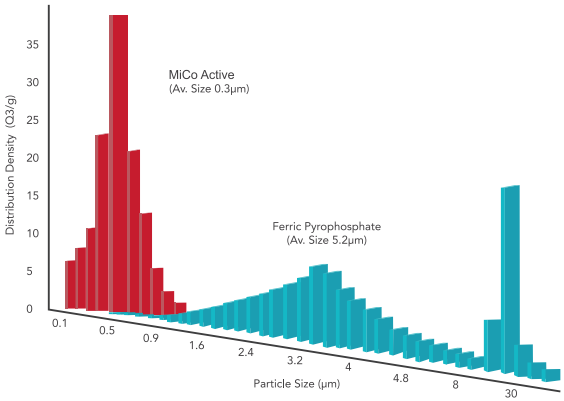
MiCo Active
ADVANTAGES

- **Smallest Particle size (0.3-0.5um)**
- **Clinically proven efficacy and tolerability**
- **Very effective in Iron Deficiency Anemia. - associated with pregnancy, paediatrics, women health, CVD, surgery, CKD, geriatrics.**
- **Excellent patient compliance**
  - **No diarrhea**
  - **No constipation**
  - **No metallic taste**
  - **No staining of teeth**
- **Ready to lauch formulations as tablet, capsule, suspension, chewable tablets, mouth and water dispersible sachets and gummies**

PARTICLE SIZE

Bioavailability is correlated with particle size

Only Ferric Pyrophosphate with Micronised Iron - 0.3 μm



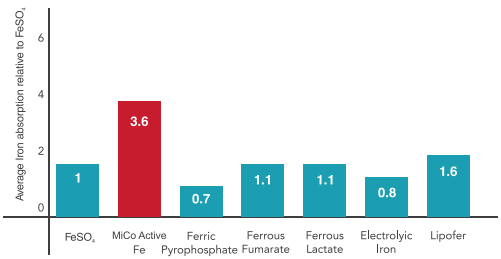
Laser Diffraction particle counter supersonic wave: 2 min

Particle Size	MiCo Active	Other Liposomal Iron
	0.3-0.5μm	6-10μm

MA Roe et al, Eur J Nutr (2009) 48:115–119 Sakaguchi et al, 2004. J. Vit. Nutr. Res. 74:3-9

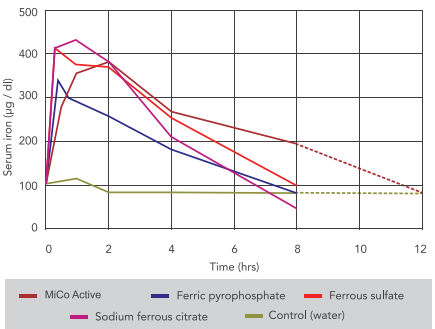
Increased bioavailibilty compared to other iron salts

In Vitro Caco-2 Assay



Kloots et al, 2004. Agric. Food Chem. 52:1832-36

Animal Bioavailability Studies

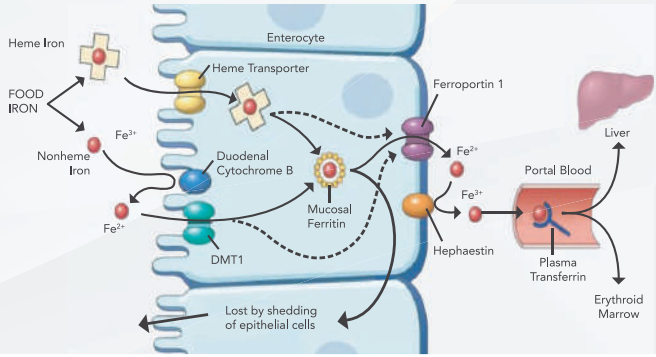


Sakaguchi et al, 2004. J. Vit. Nutr. Res. 74:3-9

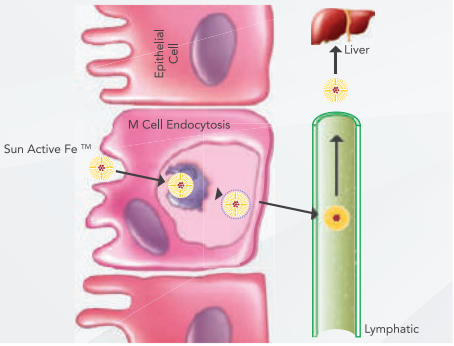
Bioavailability	MiCo Active	Other Liposomal Iron
	4x	<2x

MECHANISM

Conventional Iron Absorption



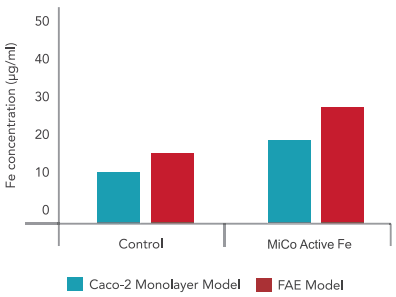
MiCo Active

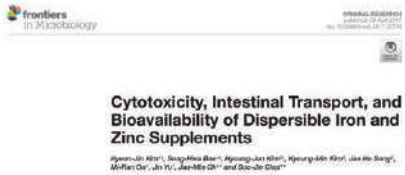


Absorption through M-cells

MiCo Active is preferentially taken up by M-cells of the intestine

Intestinal Transport mechanism of MiCo Active





MiCo Active was determined to be primarily transported by microfold (M) cells through the intestinal epithelium."

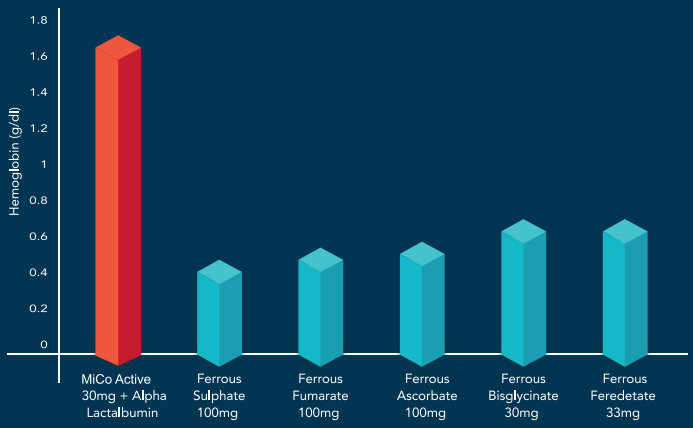
Test	MiCo Active	Other Liposomal Iron
Proven Uptake Through M Cells	✓	✗

Kim et al, 2017. Frontiers in Microbiology. 8(749):1-14

CLINICAL EFFICACY

PREGNANCY

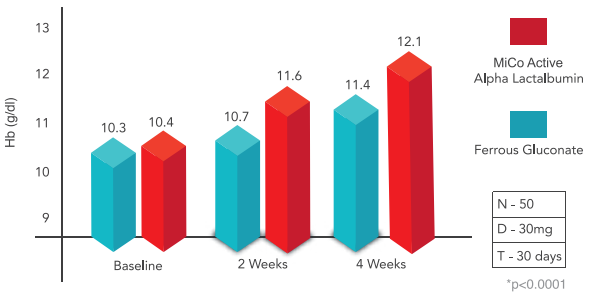
Comparison of mean rise in Hb on Day 30 (g%) in pregnant women; Meta Analysis



1. Indian Journal of Obstetrics and Gynaecology Research 2015;2(3): 155-158
2. Eur Rev Medi Pharmacol Sci. 2018. 22: 3602 - 3608

CLINICAL TRIALS

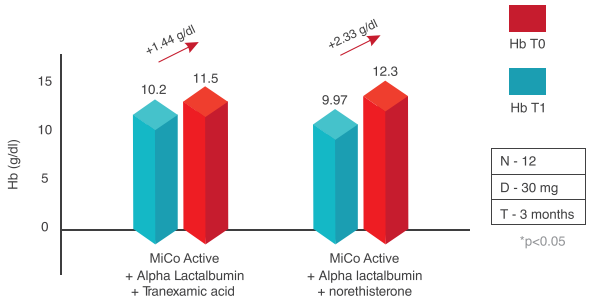
01 PREGNANT WOMEN



Hemoglobin increases by 1.7g/dl

Lagana et al, 2018. Eur Rev Medi Pharmacol. 22:3602- 3608

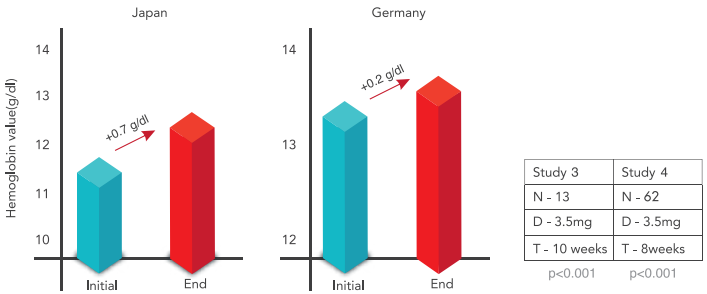
02 MENOMETRORRHAGIA



Hemostatic group: Hemoglobin increases by 1.4g/dl
Hormone group: Hemoglobin increases by 2.3g/dl

Angelucci M, IJMDAT 2020; 3: e246

03 IRON DEFICIENCY ANEMIA IN NON PREGNANT WOMEN

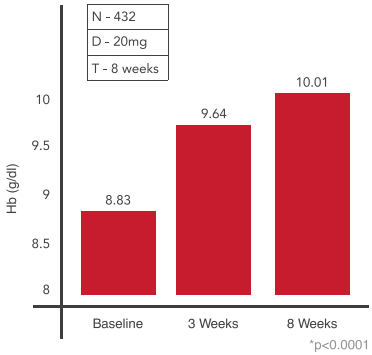


Japan study:Hemoglobin increases by 0.7g/dl
Germany study:Hemoglobin increases by 0.5g/dl

Japan study= Yamashita et al. Int conf Nutr Ageing ILSI
Germany study= Ahrems et al., 2000. Functional Foods. 6:16 17

04 INDIAN TRIAL- INFANTS

Increase in Hemoglobin with SunActive™ Fe administration in Infants (6-18 months)

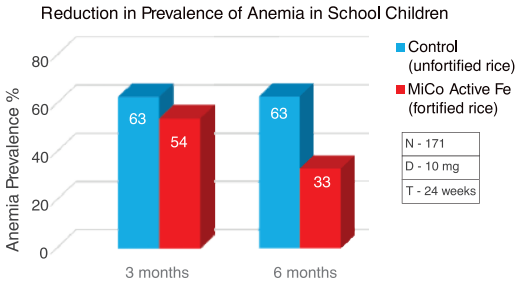


Hemoglobin increases by 1.18g/dl

Hirve et al, 2007. Indian Pediatrics. 44:91-100

05 SCHOOL CHILDREN

Reduction in Prevalence of Anemia in School Children

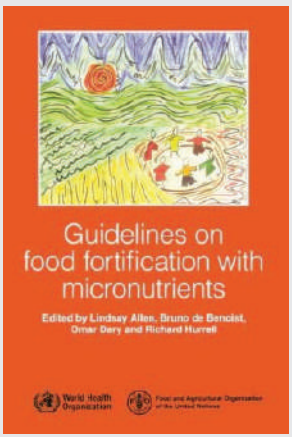


Anemia drops by 67%

I Angeles Agdeppa et al. Int. J. Vitam. Nutr. Res., (78)2, 2008, 74 86

SAFETY

“MiCo Active Recommended by the WHO”



MiCo Active has been suggested as an ideal fortification particularly in juices, soft drinks, bouillon cubes and dairy products.

SAFETY STUDY	MiCo Active
No adverse effect in human study	☑
No Mutagenicity (AMES test)	☑
WHO Recommended	☑
Gastric Tolerance	☑
Diarrhea	☒
Constipation	☒
Metallic Taste	☒
Staining of Teeth	☒

Population	Author	Published/Presented in	Number of Subjects	Dose	Duration	Results
Pregnant Women	Lagana et al	European Review for Medical and Pharmacological Sciences	50	30mg	30 days	Hb increased by 1.7g/dl
Pregnant Women	Ikegawa et al	Japanese Society of Obstetrics and Gynaecology	7	6mg	30 days	Hb increased by 0.5g/dl
Anemic Women	Hotz et al	Food and Nutrition Bulletin	154	13mg	6 months	% Anemia drops by 15%
Anemic Women	Ahrens et al	Functional Foods	62	3.5mg	8 weeks	Hb increased by 0.2 g/dl
Anemic Women	Yamashita et al	Int Conf Nutr Ageing ILSI	13	3.5mg	10 weeks	Hb increased by 0.7g/dl
Women with menometro-rrhagia	Angelucci et al	2020	12	30mg	3 months	Haemostatic group: Haemoglobin increase by 1.4g/dl Hormone group: Haemoglobin increase by 2.3g/dl
Infants	Hirve et al	Indian Pediatrics	432	20mg	8 weeks	Hb increased by 1.18g/dl
Children	Angeles Agdeppa et al	International Journal of Vitamin and Nutrition Research	171	10mg	6 months	% Anemia drops by 65%
School Children	Angeles-Agdeppa et al.	Asia Pac J Clin Nutr 2011;20 (4):535 2011	89	2.6mg /day	100 Days	Anemia prevalence reduced by 87%
Total No. of Subjects			**988**			

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