



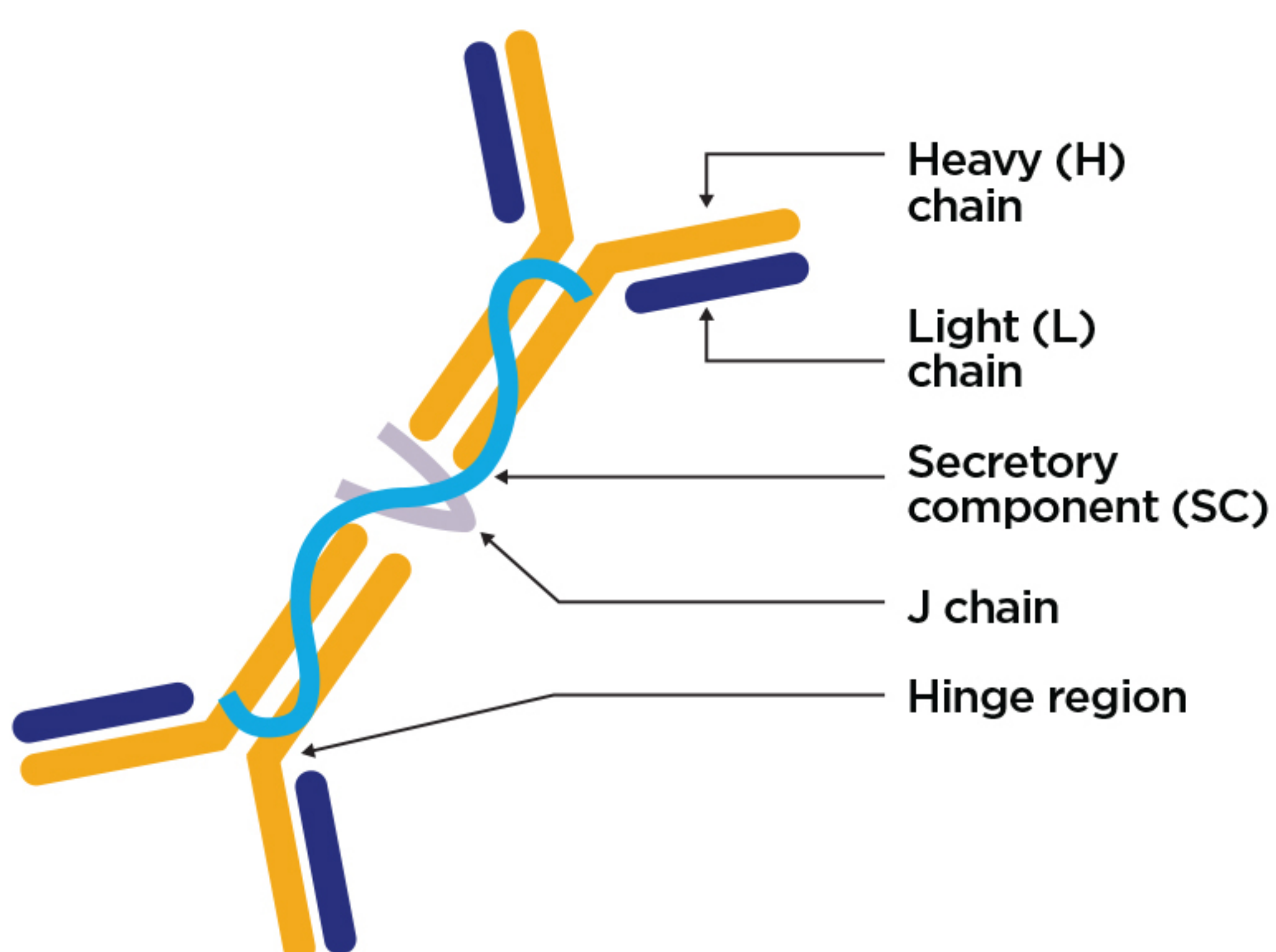


Prebiotic HMOs and Immunity¹

HMOs play a vital role in modulating gut immunity and systemic immune responses through several mechanisms.

-  HMOs promote the growth of beneficial commensal bacteria like bifidobacteria and lactobacilli, which produce short-chain fatty acids (SCFAs) that support mucosal immunity and gut barrier integrity.
-  HMOs also act as decoys, preventing pathogens from adhering to the gut lining, thereby reducing the risk of infections.
-  HMOs modulate the immune system by interacting with gut-associated lymphoid tissue (GALT) and stimulating the production of anti-inflammatory cytokines while decreasing pro-inflammatory cytokines. This dual action helps in maintaining gut integrity and supporting systemic immune responses.
-  **Additionally, HMOs are involved in the activation of Peyer's patches, stimulating B cells to produce immunoglobulins that contribute to immune defense.**

SECRETORY IgA²



- sIgA is the most abundant antibody in the human body
- Found in saliva, tears, colostrum, and secretions from the gastrointestinal, respiratory, and genitourinary tracts
- Integral part of the mucosal immune system
- The concentration of sIgA is highest in colostrum
- Important marker to assess immunity

Clinical Evidence of Effect of 5-HMO Mix on Immunity³

Infant Formula with a Specific Blend of Five Human Milk Oligosaccharides Drives the Gut Microbiota Development and Improves Gut Maturation Markers: A Randomized Controlled Trial

STUDY DESIGN



Randomized, controlled, double-blind



Follow-up:
up to 15 months



Multicenter:
32 study sites in Bulgaria, Hungary, and Poland



GROUPS 4:
Test group 1: 1.5 g/L of 5 HMOs mixture
Test group 2: 2.5 g/L of 5 HMOs mixture
Control group: Without 5 HMOs
Reference group: Human milk fed group



Participants:

- 693 healthy and full-term infants
- Birth weight between 2,500-4, 500 g
- Aged 7-21 days

EFFECT ON GUT FUNCTION

Cow's milk-based IF (control group)
👤 = 233

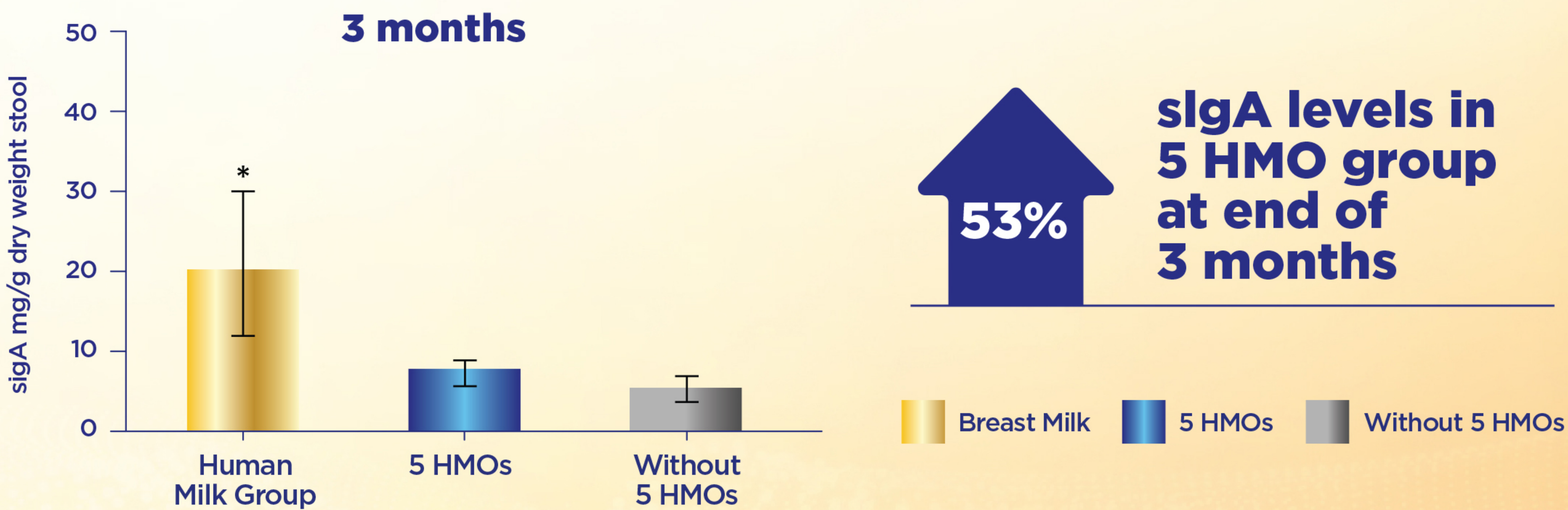


Cow's milk-based IF + 5 HMOs (TG - 1.5 g/L)
👤 = 230



HMG
👤 = 96

Adjusted mean concentrations of sIgA (Serum Immunoglobulin A Antibodies)



CONCLUSION

5 HMO supplementation enhances immune marker secretion

REFERENCES:

1. Slater AS, Hickey RM, Davey GP. Interactions of human milk oligosaccharides with the immune system. *Front Immunol.* 2025;15:1523829.
2. Donald K, Petersen C, Turvey SE, *et al.* Secretory IgA: Linking microbes, maternal health, and infant health through human milk. *Cell Host Microbe.* 2022;30(5):650-659.
3. Bosheva M, Tokodi I, Krasnow A, *et al.* Infant Formula With a Specific Blend of Five Human Milk Oligosaccharides Drives the Gut Microbiota Development and Improves Gut Maturation Markers: A Randomized Controlled Trial. *Front Nutr.* 2022;9:920362.

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