
Species-specific features of primate milk

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As a complexly structured food, medicine, and signal, milk nourishes, protects, and informs the developing neonate through nutrients, immunofactors, and hormones. Importantly, the presence and abundance of milk bioactives varies across species. This species-specific “biological recipe” of mother’s milk has been shaped by natural selection to support the developmental priorities within each species’ socioecological context and reflecting that particular evolutionary lineage. The role of milk in killing the virucide capacity, the glycan profile, and the milk proteome within human milk all show important divergences from our primate relatives. Moreover, rarely is milk composition at fixation within species; substantial variation among individuals seemingly shapes infant survival and well-being. Our understanding of species-specific milk has implications for public health and medicine among diverse human populations. Although breast milk is described as liquid gold, and breastfeeding as the gold standard of early life nutrition, scientists have yet to identify “liquid gold standards.” Decoding mother’s milk within and across species is necessary to guide public health recommendations and enhance precision medicine for the most fragile infants and children in neonatal and pediatric intensive care units.

References

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