



Background

- Colonization is an important risk factor for invasive candidiasis.
- Bovine lactoferrin supplementation decreases invasive fungal infections in neonates but not colonization.
- Few studies have examined the effect of endogenous human lactoferrin in breast milk to determine the effect on fungal colonization.
- The effect of other components of breast milk on fungal colonization is not known.

Hypothesis

Higher levels of endogenous lactoferrin and lysozyme in breast milk are associated with reduced fungal colonization in a NICU setting

Design and Methods

- NICU infants > 72 hours of age eligible.
- Cultures collected weekly from three sites—oral, rectal, and inguinal.
- Infants followed up to 12 weeks until discharged, transferred, or expired.
- Maternal breast milk was obtained for culture at enrollment and then once weekly.
- Lactoferrin and lysozyme measured using a commercial ELISA kit (Abcam, Cambridge, MA)

Results

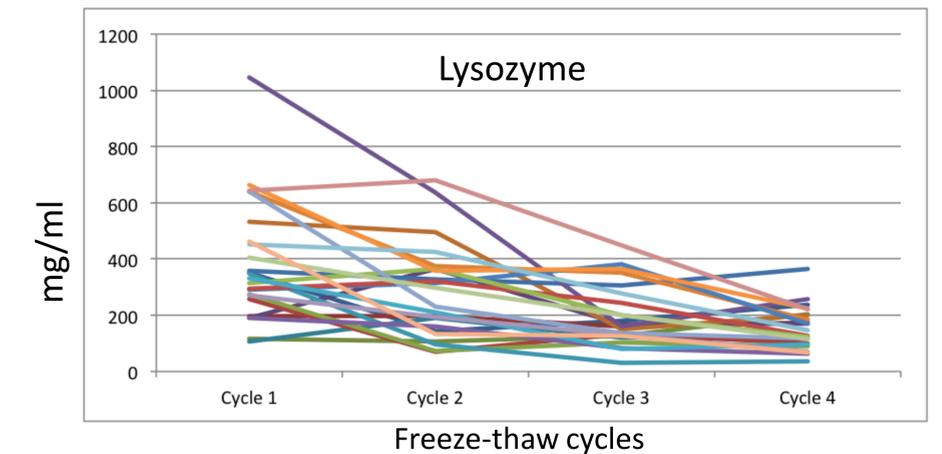
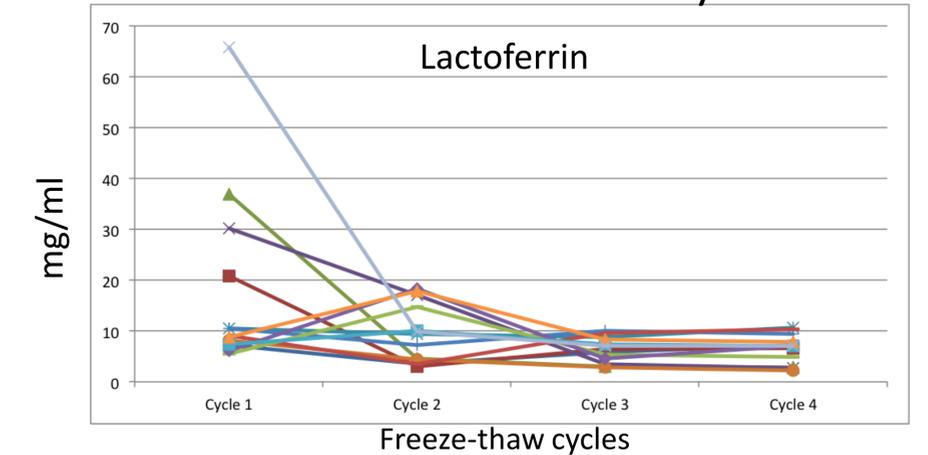
Table 1. Selected demographics

N=130	Mean	SD	Range
Gestational age	34.6 wks	3.6	23.4-40.9 wks
Birth Weight	2362 g	947	460-6930 g
Duration of hospital stay	24 d	30	3-172 d
	Number	Percent	
Male	73	56.2%	
<37 weeks gestational age	93	71.5%	
Low Birth weight (<2500g)	86	66.1%	
Very low birth weight (< 1500g)	20	15.4%	
Vaginal delivery	74	56.9%	
Baby received breast milk	108	83.1%	
Colonized with yeast	29	22.3%	

Table 2. Levels of lactoferrin and lysozyme

	N (Colonized)	Colonized	N (Uncolonized)	Uncolonized	P
Lactoferrin (mg/ml)	7	30 +/- 21	23	17 +/- 17	0.09
Lysozyme (mg/ml)	12	278 +/- 149	12	460 +/- 197	0.02

Effect of freeze-thaw cycles



Conclusions

- Lower levels of breast milk lysozyme but not lactoferrin are associated with yeast colonization
- Repeated freeze-thaw cycles may affect the accuracy of measurements
- Further study is needed to explore potential biologic mechanisms to explain these findings.