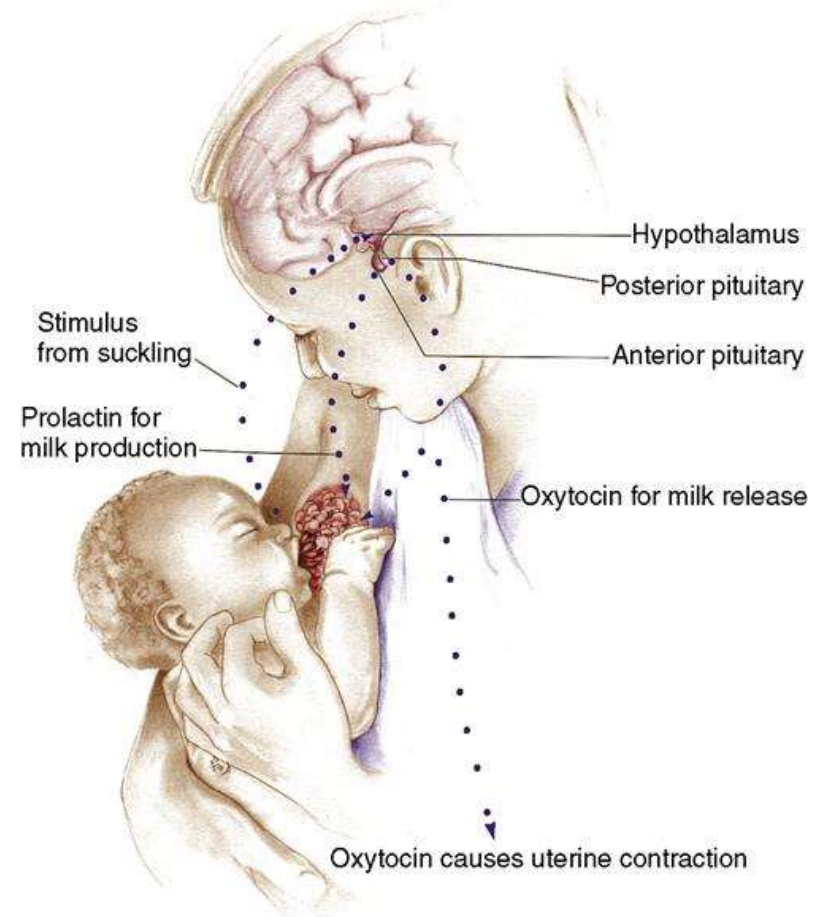


## *Plasticidad de la leche materna*



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**La leche materna es un fluido dinámico, cuya composición presenta una enorme variabilidad**



**Calostro:** 3 primeros días de vida. Facilita la evacuación del meconio ( $\beta$ -glucuronidasa). 2 a 20 ml c/lactada, los 3 primeros días.

**Leche de transición:** 4<sup>to</sup> día hasta la segunda semana pos-parto (mayor plasticidad para modular la cantidad y la calidad de la leche producida, en función de la condición fisiológica del lactante). 600-700 ml/día entre el 8<sup>to</sup> y 15<sup>to</sup> día pos-parto.

**Leche madura:** 2<sup>da</sup> semana pos-parto y se considera que los componentes que conforman la leche materna se mantienen relativamente constantes. Menos nutrientes y más compuestos bioactivos. 700-900 ml/día durante los 6 meses posteriores al parto

## Macronutrient (g/dL) and energy (kcal/dL) composition of human milk from specified references

Author (year), n	Protein Mean ( $\pm$ 2 SD)	Fat Mean ( $\pm$ 2 SD)	Lactose Mean ( $\pm$ 2 SD)	Energy Mean ( $\pm$ 2 SD)
<b>Term infants, 24-hour collection, mature milk</b>				
Nommsen et al (1991), n=58	1.2 (0.9, 1.5)	3.6 (2.2, 5.0)	7.4 (7.2, 7.7)	70 (57, 83)
<b>Donor human milk samples</b>				
Wojcik et al (2009), n=415	1.2 (0.7, 1.7)	3.2 (1.2, 5.2)	7.8 (6.0, 9.6)	65 (43, 87)
Michaelsen et al (1990), n=2553	<sup>a</sup> 0.9 (0.6, 1.4)	<sup>a</sup> 3.6 (1.8, 8.9)	<sup>a</sup> 7.2 (6.4, 7.6)	<sup>a</sup> 67 (50,115)
<b>Representative values of mature milk, term infants</b>				
Reference standard	0.9	3.5	6.7	65 to 70
<b>Preterm, 24-hour collection, first 8 weeks of life</b>				
Bauer & Gerss (2011)				
Born <29 weeks, n=52	2.2 (1.3, 3.3)	4.4 (2.6, 6.2)	7.6 (6.4, 8.8)	78 (61, 94)
Born 32-33 weeks, n=20	1.9 (1.3, 2.5)	4.8 (2.8, 6.8)	7.5 (6.5, 8.5)	77 (64, 89)
<b>Preterm donor milk</b>				
Hartmann (2012), n=47	1.4 (0.8, 1.9)	4.2 (2.4, 5.9)	6.7 (5.5, 7.9)	70 (53, 87)

### Inmunoglobulinas

IgA  
IgG  
IgM

### Citoquinas

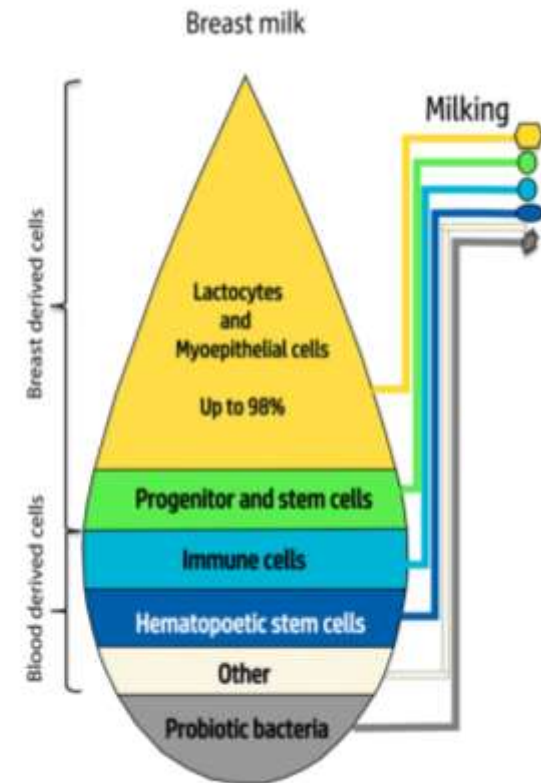
IL  
TNF-alfa  
INF-gama  
TGF-beta

### Factores de crecimiento

EGF  
VGF  
NGF  
IGF  
Eritropoyetina

### Hormonas

Calcitonina  
Leptina  
Grelina





Regulation of gene transcription and translation

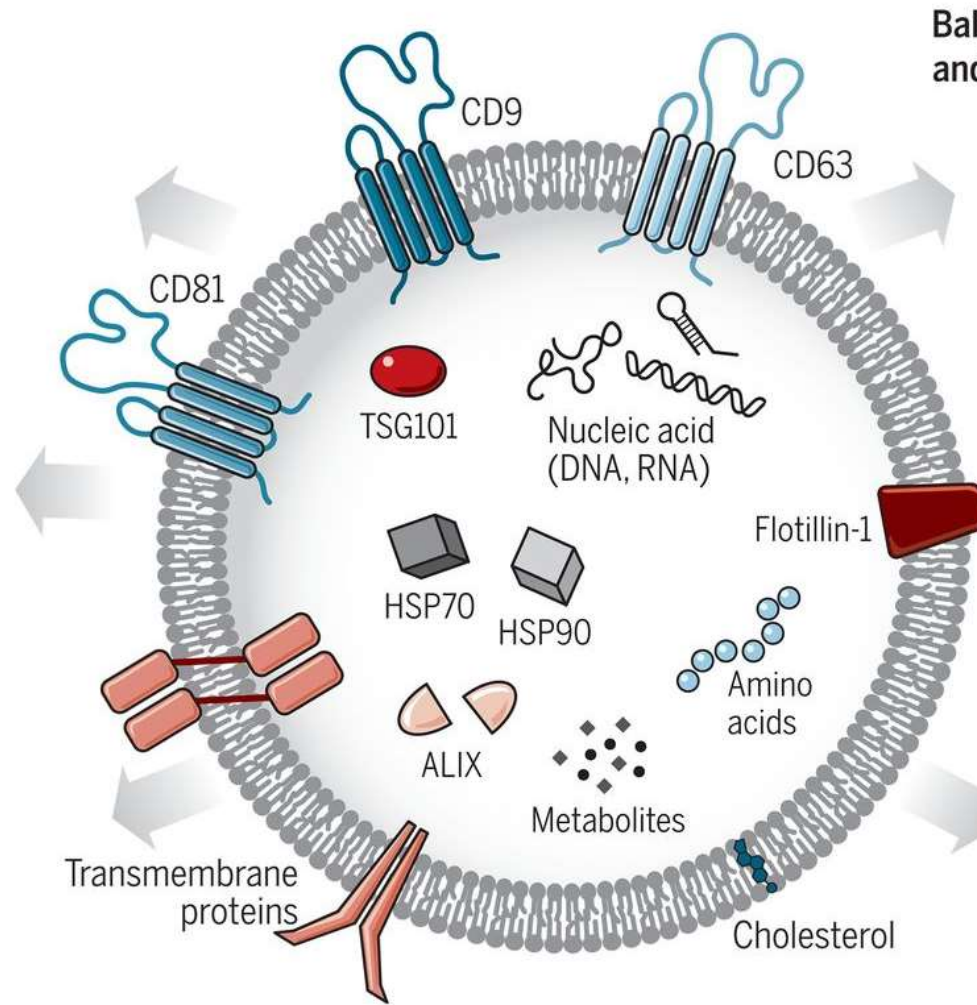
Survival and proliferation

Reproduction and development

Angiogenesis and wound healing

Waste management

Host-microbiome interaction and viral immunity



Balance of immune response and regulation of central and peripheral immunity

Receptor-ligand signaling

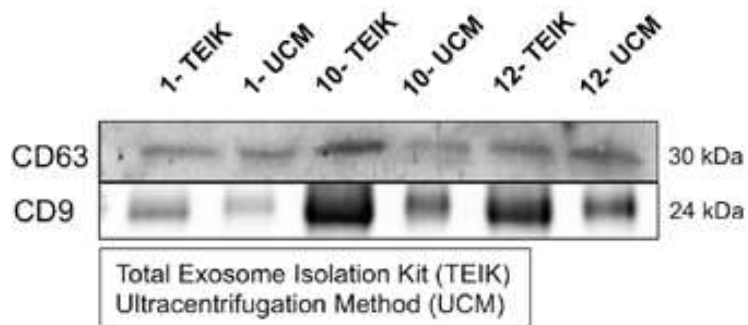
Apoptosis

Cellular differentiation and neoplasia

Cellular migration and metastatic disease

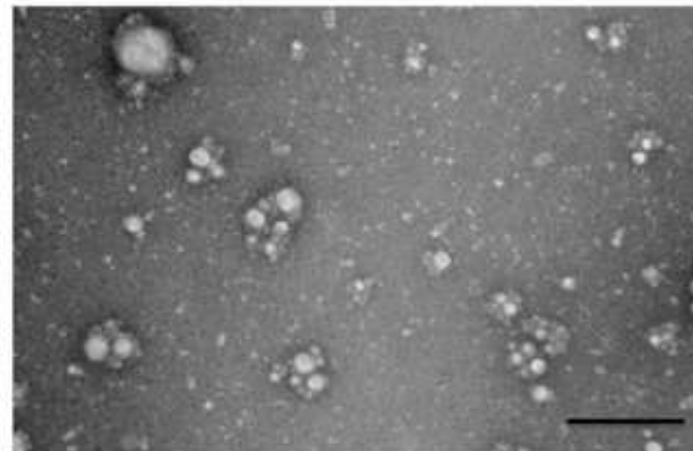
Metabolic reprogramming and regulation

A

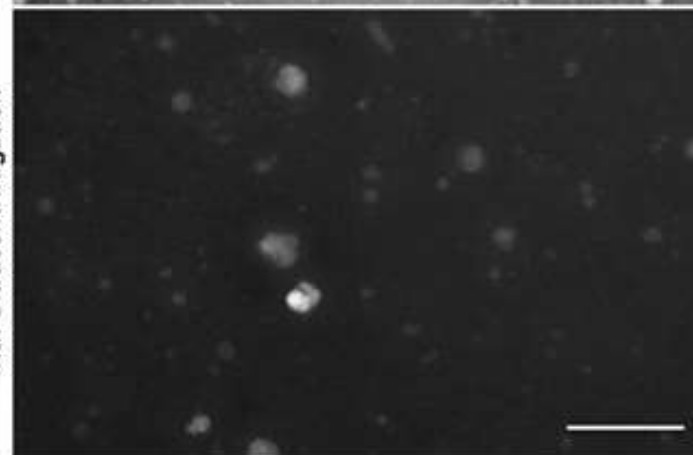


B

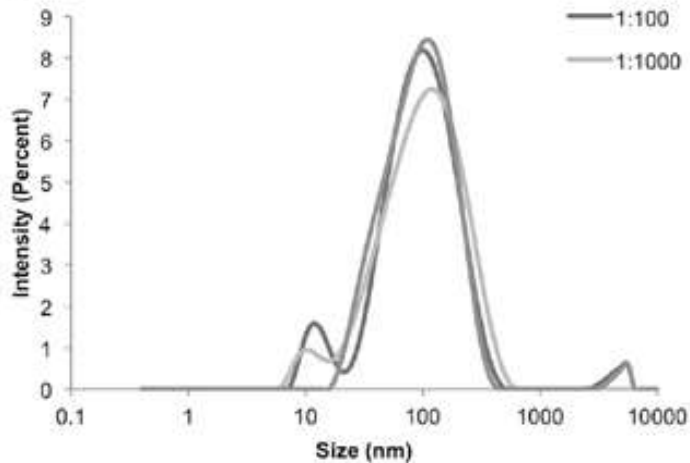
Exosomes Isolated from Serum with Total Exosome Isolation Kit

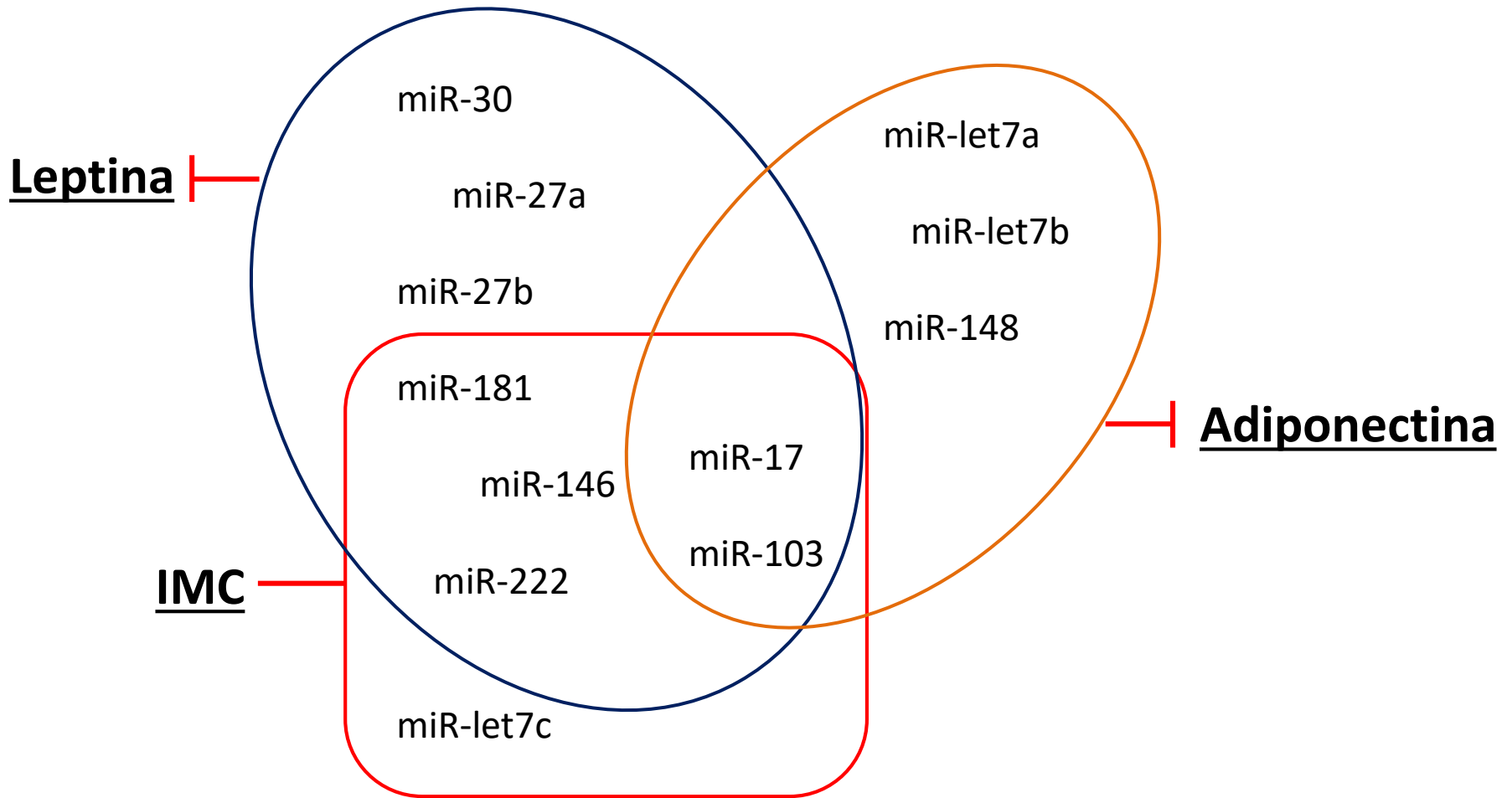


Exosomes Isolated from Serum with Ultracentrifugation

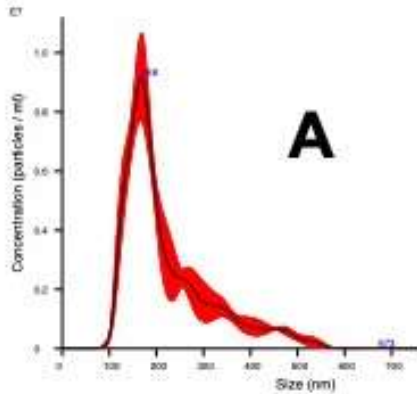


C

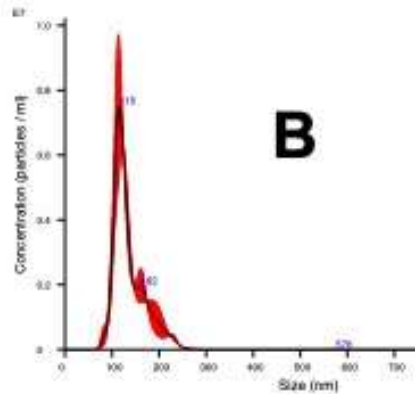




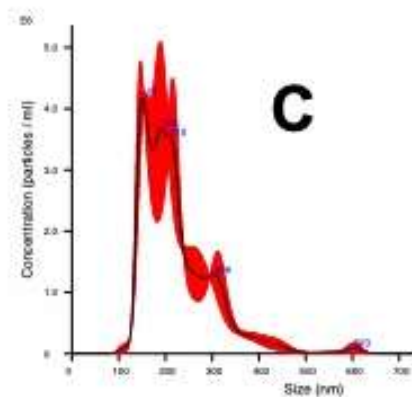




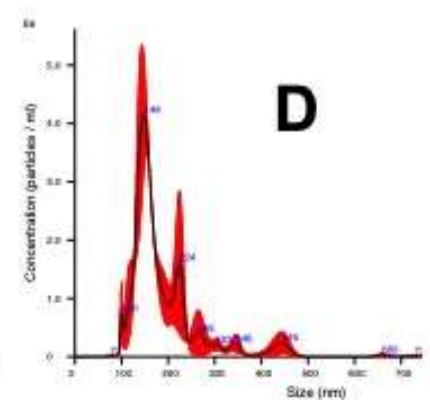
Averaged FTLA Concentration / Size for Experiment:  
Capture 2019-08-05 12-13-24  
Error bars indicate +/- 1 standard error of the mean



Averaged FTLA Concentration / Size for Experiment:  
Capture 2019-08-05 12-05-15  
Error bars indicate +/- 1 standard error of the mean



Averaged FTLA Concentration / Size for Experiment:  
Capture 2019-08-05 12-27-16  
Error bars indicate +/- 1 standard error of the mean



Averaged FTLA Concentration / Size for Experiment:  
Capture 2019-08-05 12-21-42  
Error bars indicate +/- 1 standard error of the mean

**Results**

Stats: Merged Data

Mean: 222.6 nm  
Mode: 187.6 nm

**Results**

Stats: Merged Data

Mean: 135.8 nm  
Mode: 114.9 nm

**Results**

Stats: Merged Data

Mean: 224.0 nm  
Mode: 150.9 nm

**Results**

Stats: Merged Data

Mean: 183.5 nm  
Mode: 148.1 nm  
SD: 81.1 nm

-80°C (A)  
305 ng/ul

-20°C (B).  
235 ng/ul,

-80°C y descongela da (C)  
214ng/ul

4°C (D)  
200ng/ul

- Generación de convenios
- Determinación de expresión de miRNAs presentes de exosomas de leche materna
- Comparación del perfil de expresión de miRNAs según estado gestacional

