

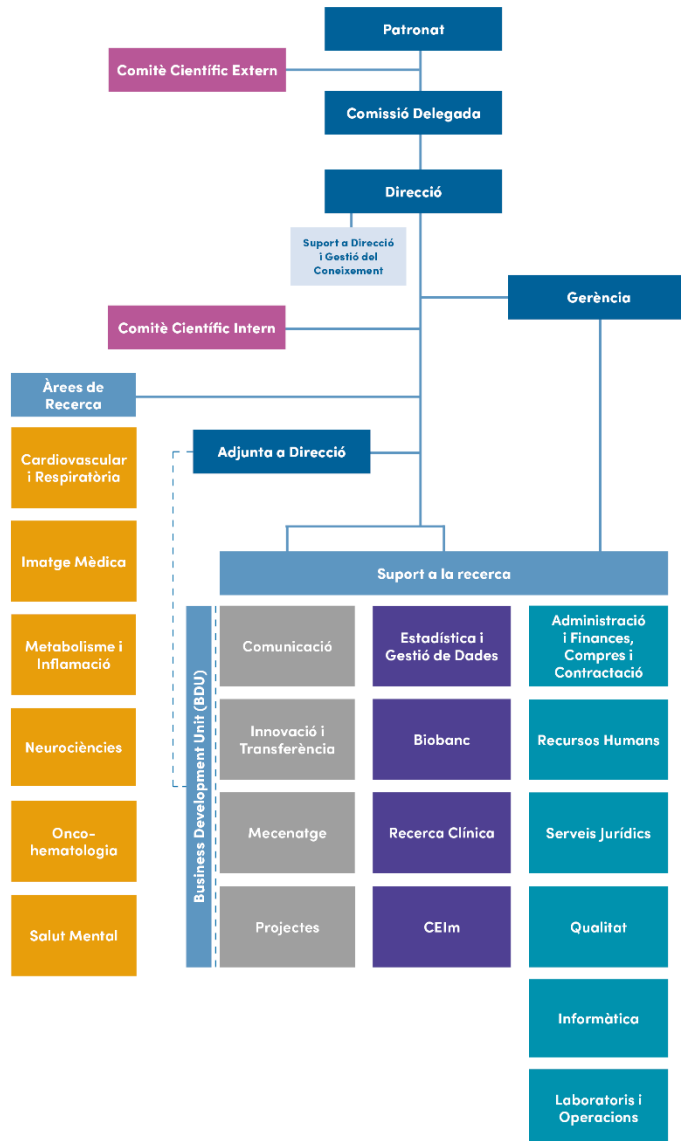
Epigenètica i programació fetal

Dra. Judit Bassols

**IdIB^R
IGi**

**Institut
d'Investigació
Biomèdica
de Girona
Dr. Josep Trueta**

Dr. Josep Trueta





IDIBGI : Hospital Dr. Josep Trueta de Girona



IDIBGI: Parc Hospitalari Martí i Julià

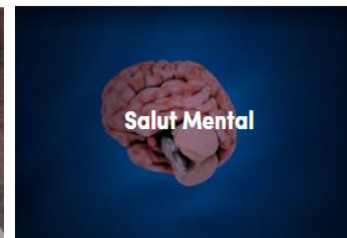
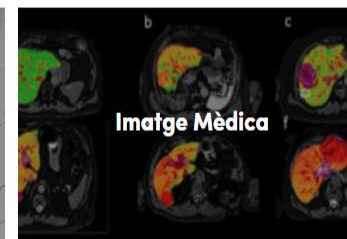


Personal de l'IDIBGI :

	 Women	 Men	Total
GROUP LEADER (R4)	1	20	21
ESTABLISHED RESEARCHERS (R3)	15	18	33
POST-DOCTORAL RESEARCHERS (R2)	29	10	39
PRE-DOCTORAL RESEARCHERS (R1)	37	22	59
TECHNICIANS	26	11	37
NON-SCIENTIFIC RESEARCH SUPPORT STAFF	17	5	22
COLLABORATORS	91	57	148
CLINICAL TRIALS STAFF	9	2	11
CORE FACILITIES & SCIENTIFIC PLATFORMS STAFF	2	2	4
MANAGEMENT STAFF	14	7	21
	241	154	395

● Research staff ● Administration and support staff

Àrees de Recerca de l'IDIBGI :

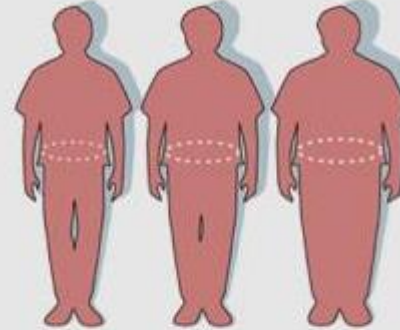




RECERCA METABÒLICA MATERNO-FETAL

Responsable:

Judit Bassols Casadevall



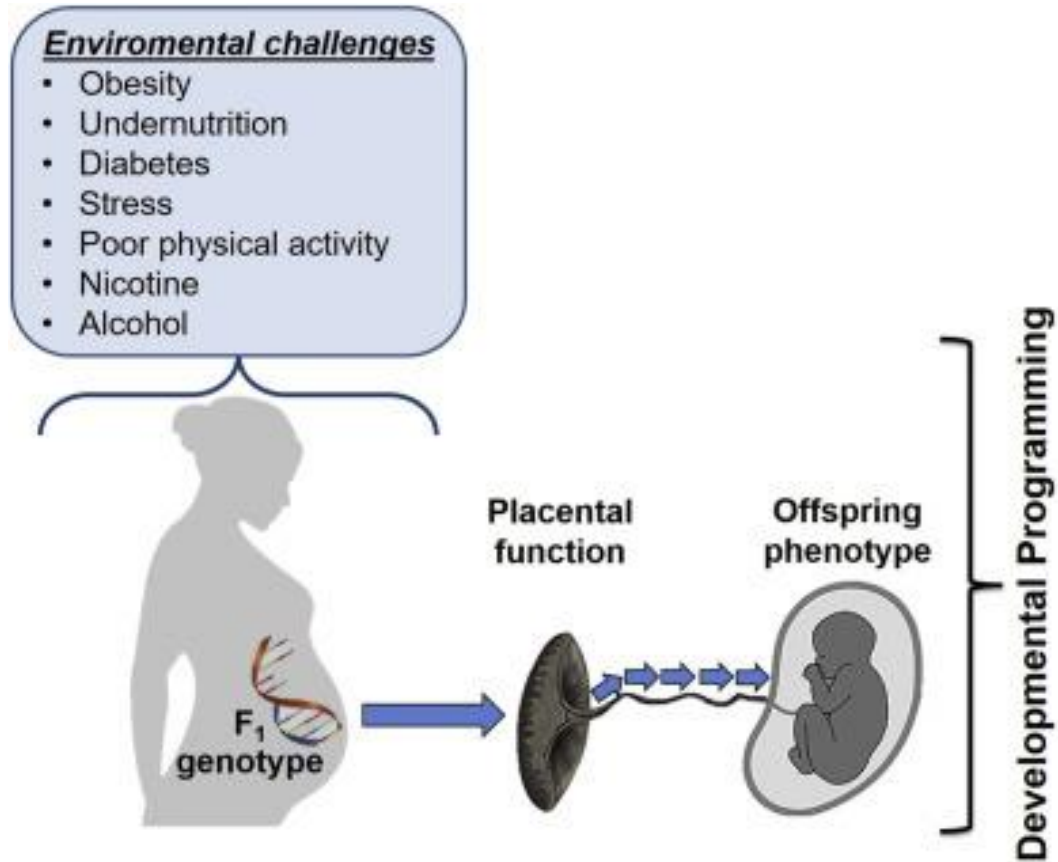
**GRUP D'OBESITAT I RISC
CARDIOVASCULAR EN PEDIÀTRIA**

Responsable:

Abel López-Bermejo

Prevenió de l'obesitat i el risc cardiovascular en la infància

PROGRAMACIÓ FETAL



PROGRAMACIÓ FETAL



Fig 1 Ethel Margaret Burnside

Weight at Birth.	Weight 1st Year	Food.	No. of Visits.	Condition, and Health Vis
8 1/4 lbs	24 1/2 lbs	B.	11	W. R. T. Buckland School.
7 lbs	18 1/4 lbs	B.	12	h. Y. Had measles, p...
8	20	Bot.	11	Y. Y. moved to High Green St. Notham.
8 1/2	22	B.B.	9	Y. Y. P.B. above in neck opened. Int. p.ianelle with pen 23 yrs. Abstem.
				Scott. & normal. Buckland School.

Fig 2 Extract from one of the ledgers kept by Miss Burnside's nurses

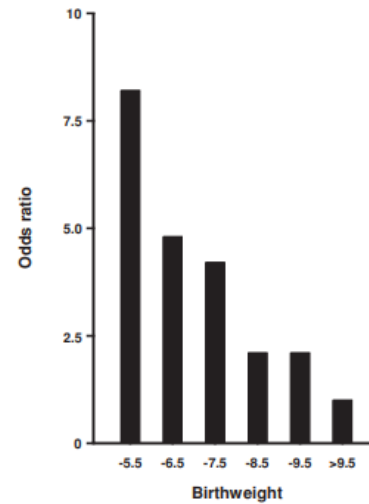


Fig. 1 Odds ratio for impaired glucose tolerance or type 2 diabetes according to birth weight among 370 men aged 64 years born in Hertfordshire (adjusted for adult body mass index).

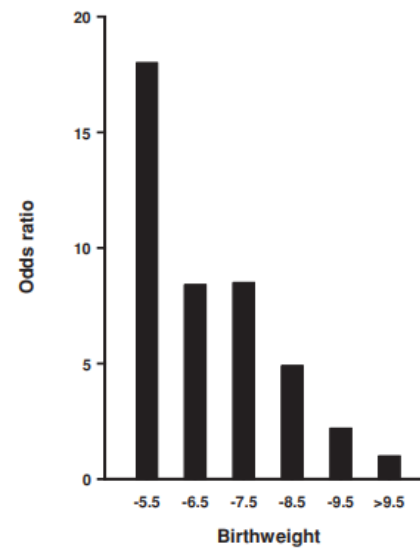


Fig. 2 Odds ratio for the metabolic syndrome according to birth weight among 407 men born in Hertfordshire (adjusted for adult body mass index).

PROGRAMACIÓ FETAL

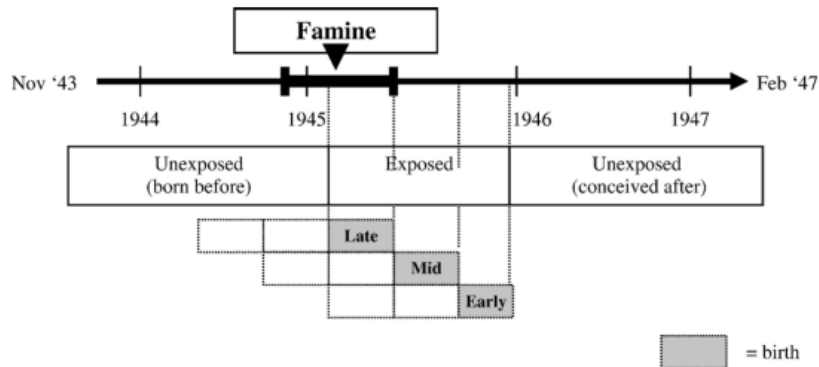


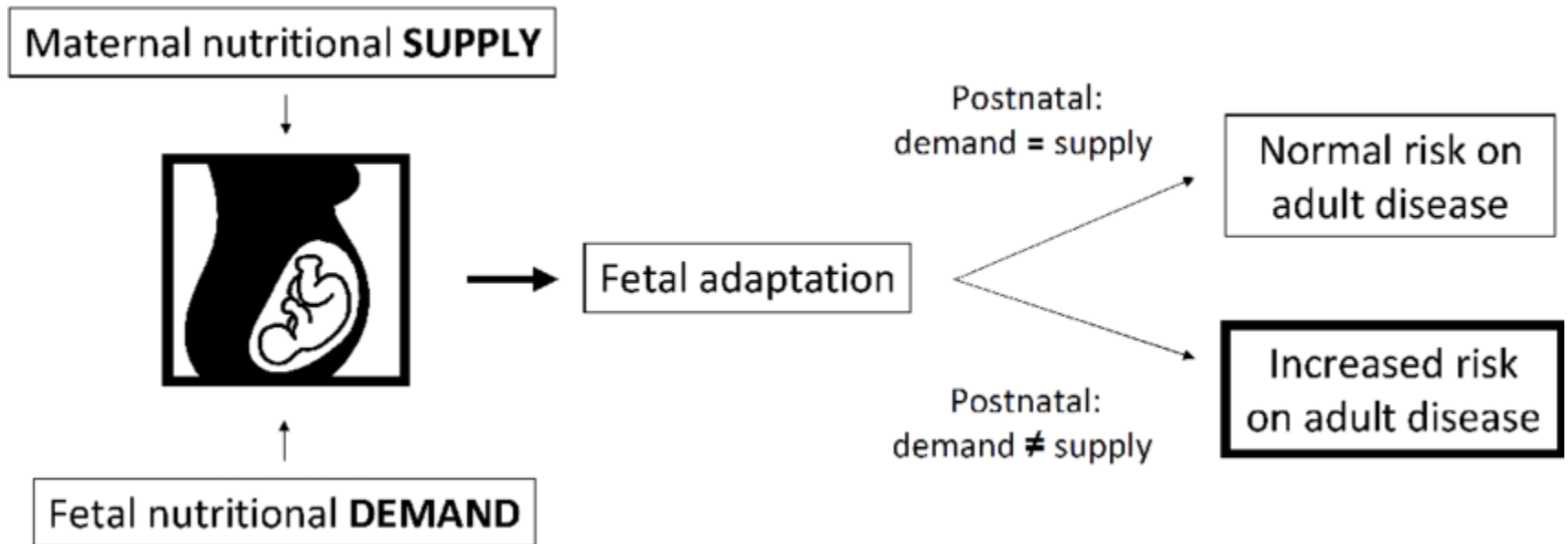
Figure 1 The Dutch famine birth cohort: famine exposure and birth in relation to the timing of the Dutch famine.

Exposure to famine		
In late gestation	In mid gestation	In early gestation
Glucose intolerance	Glucose intolerance	Glucose intolerance
	Microalbuminuria	Atherogenic lipid profile
	Obstructive airways disease	Altered blood coagulation
		Obesity (women only)
		Stress sensitivity
		Coronary heart disease
		Breast cancer

Figure 2 Long-term consequences of exposure to famine according to timing during gestation.



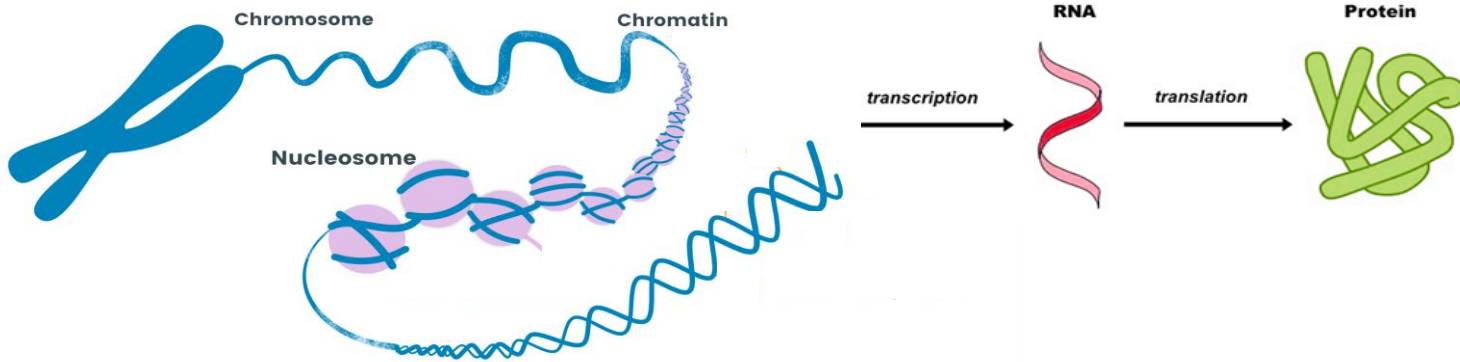
PROGRAMACIÓ FETAL



EPIGENÈTICA



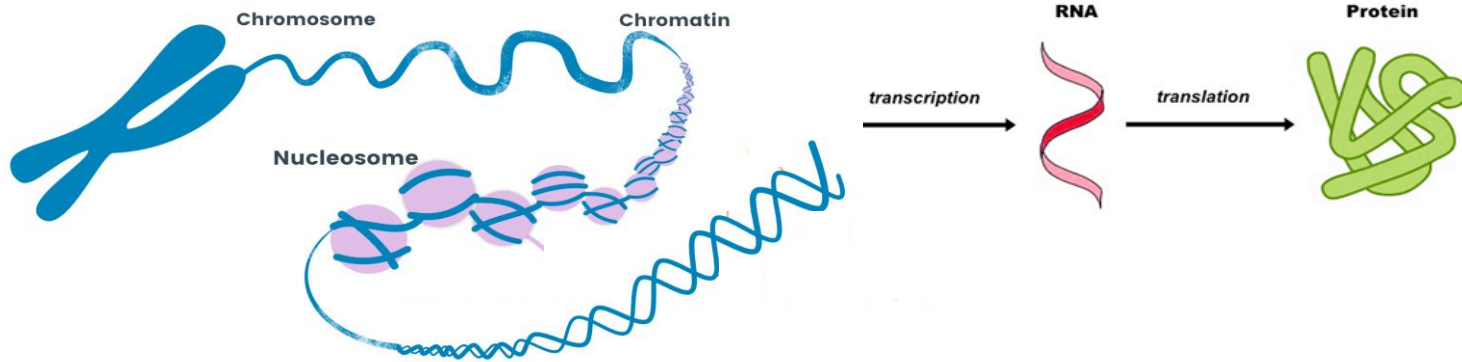
GENÈTICA



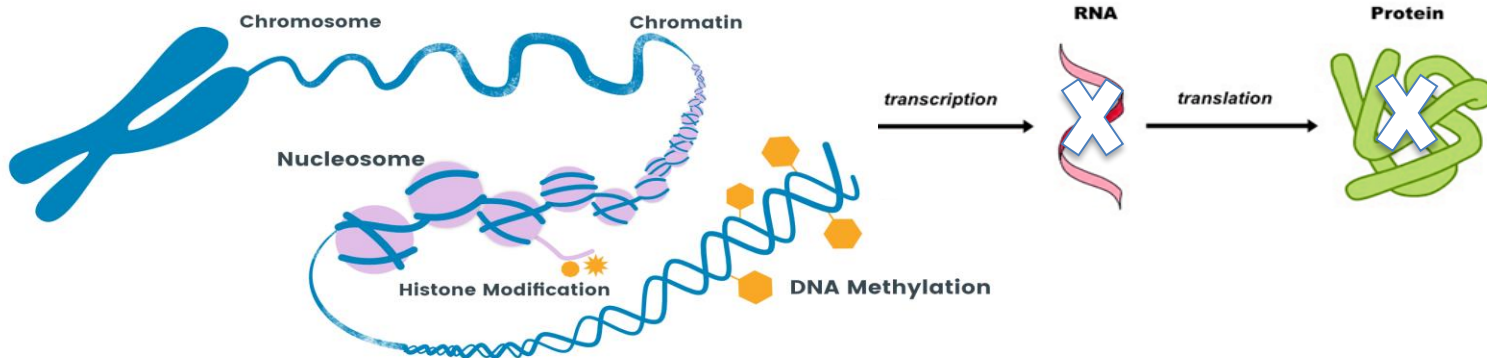
EPIGENÈTICA



GENÈTICA



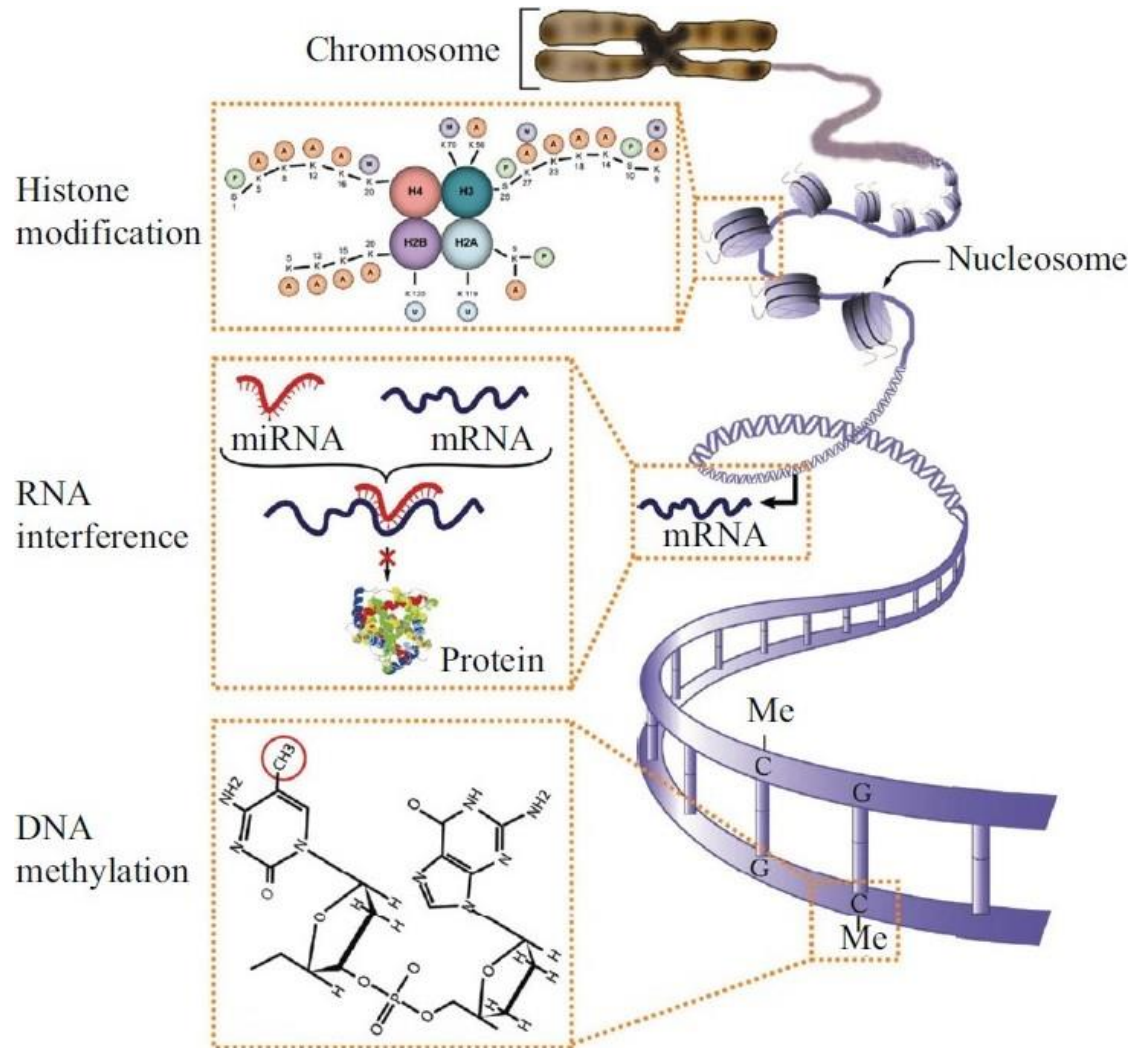
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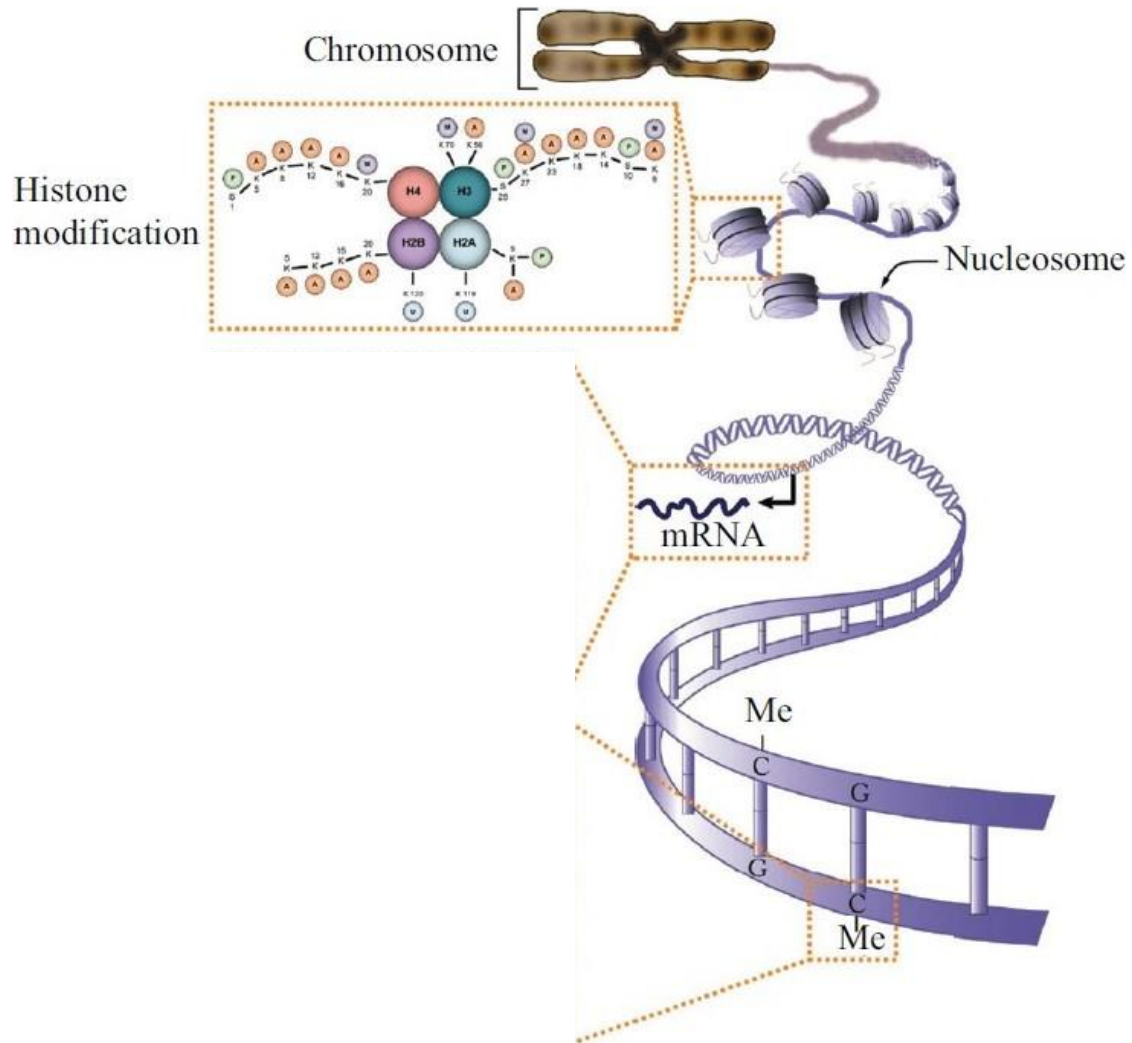
EPIGENÈTICA



EPIGENÈTICA

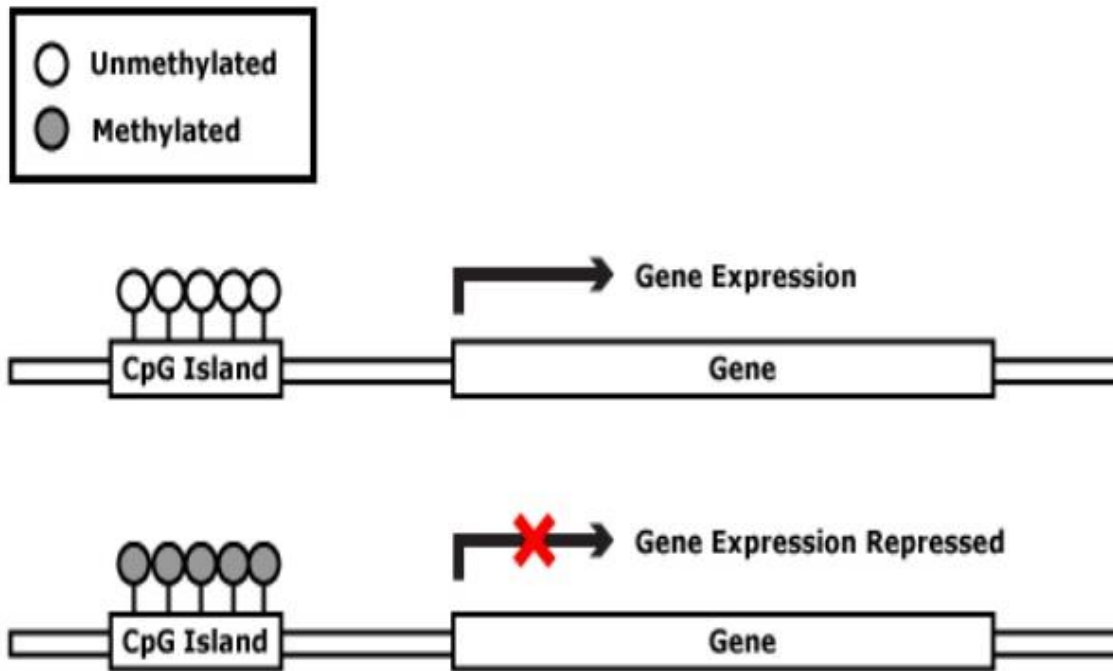


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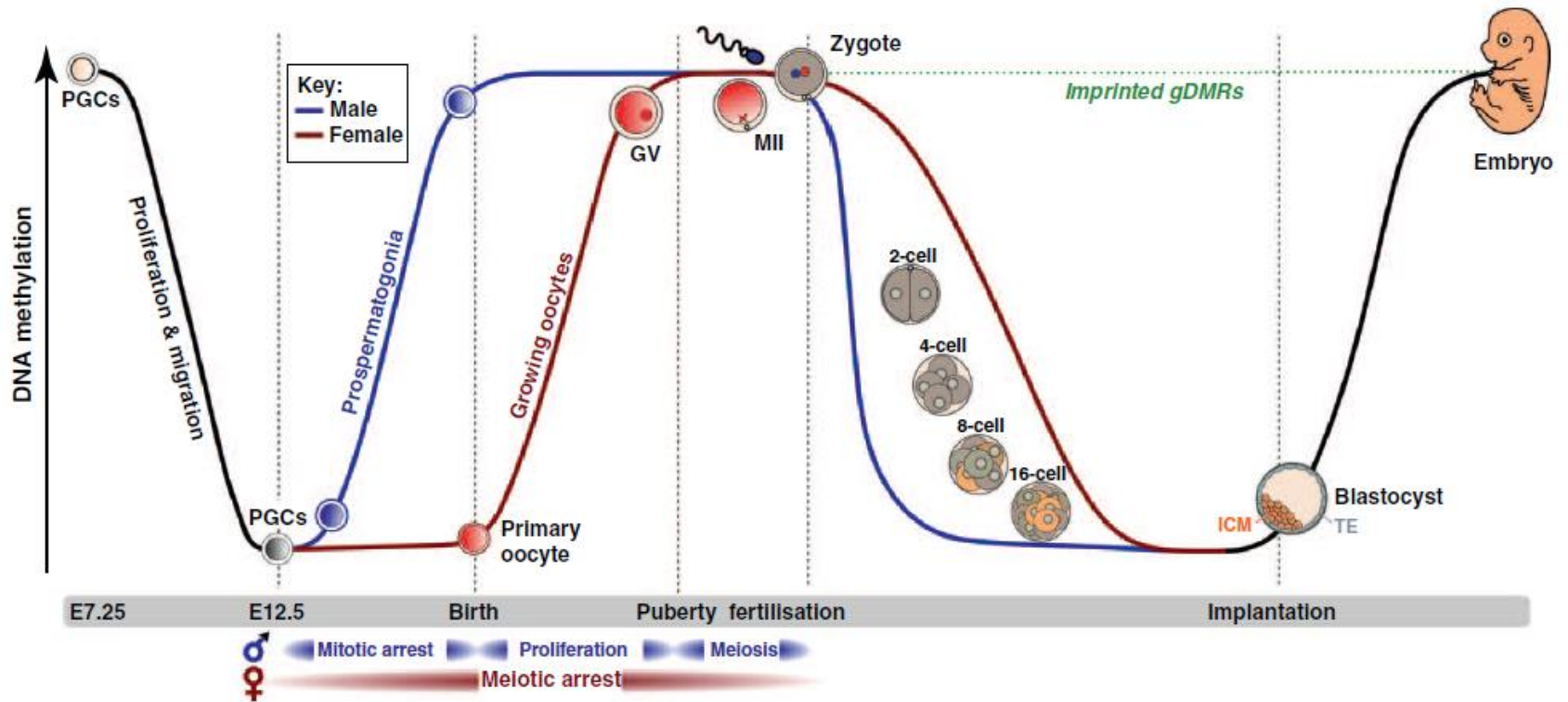


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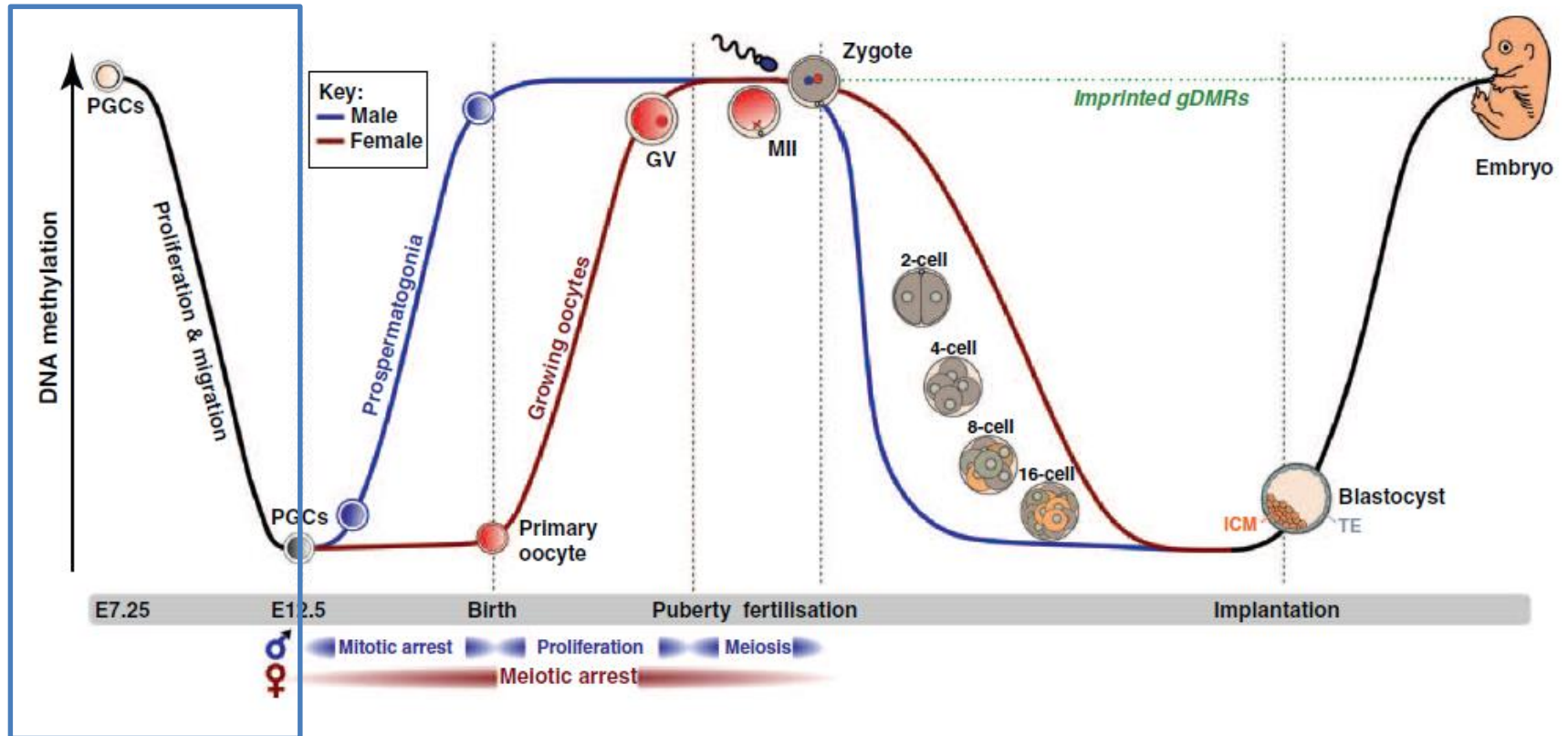
METILACIÓ D'ADN



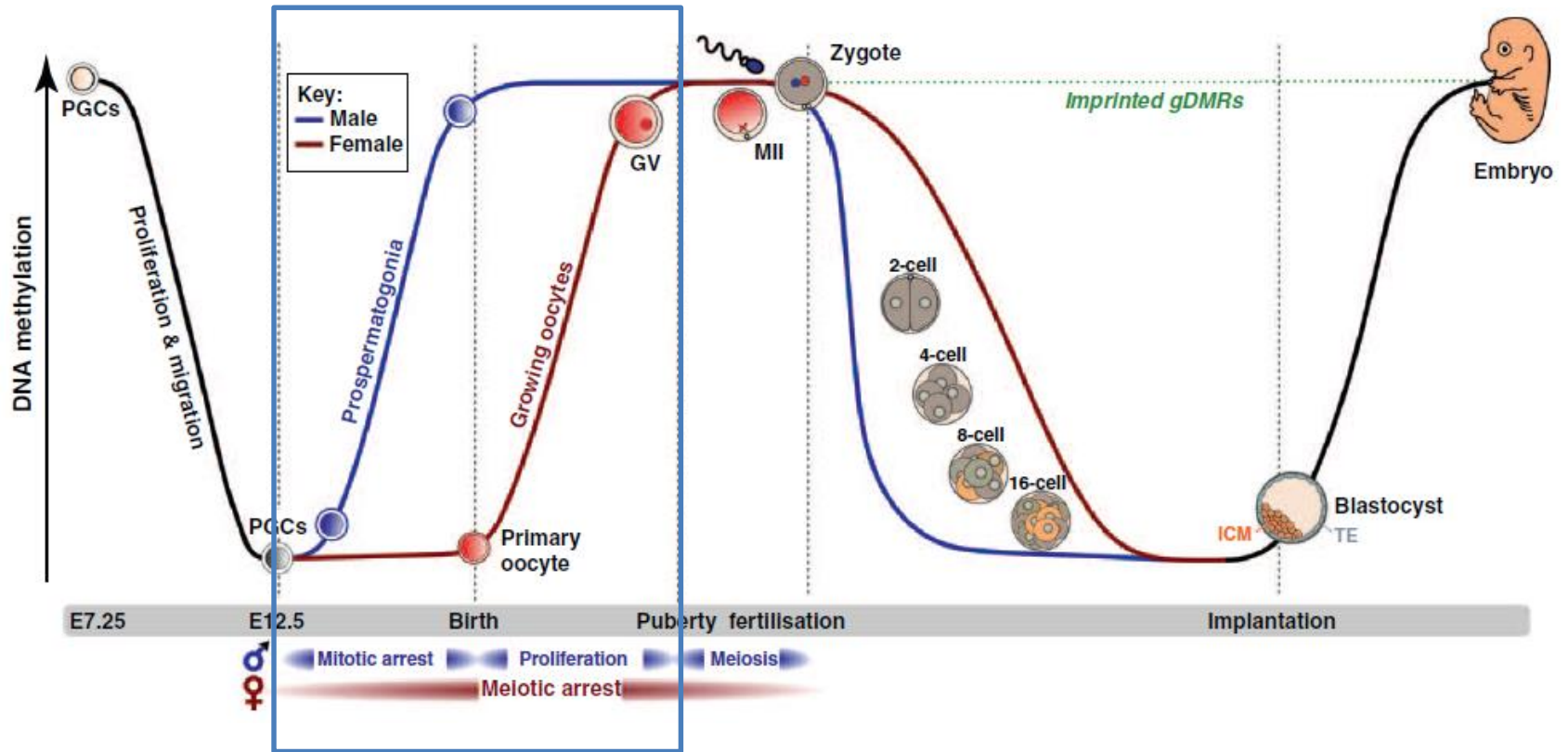
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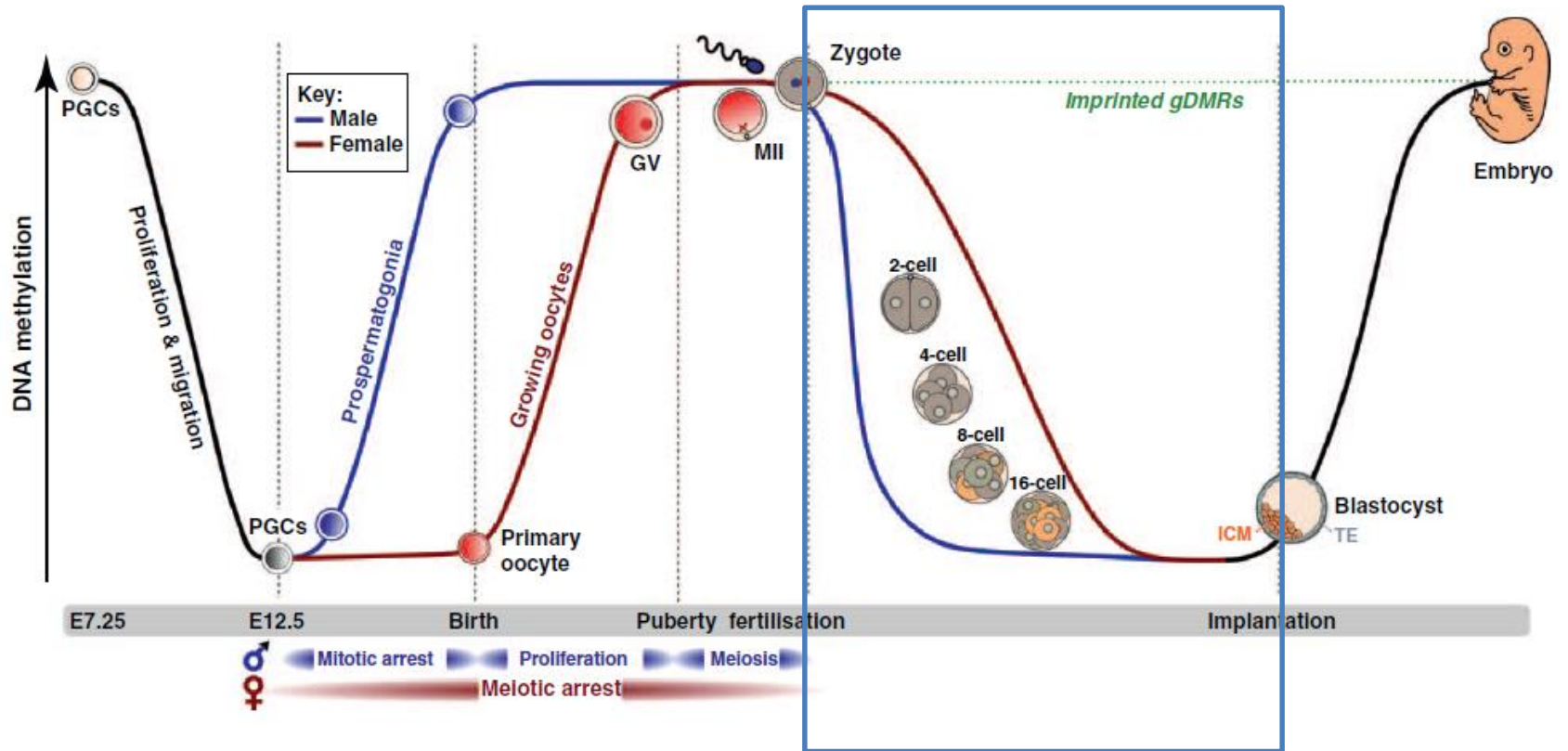
REPROGRAMACIÓ EPIGENÈTICA



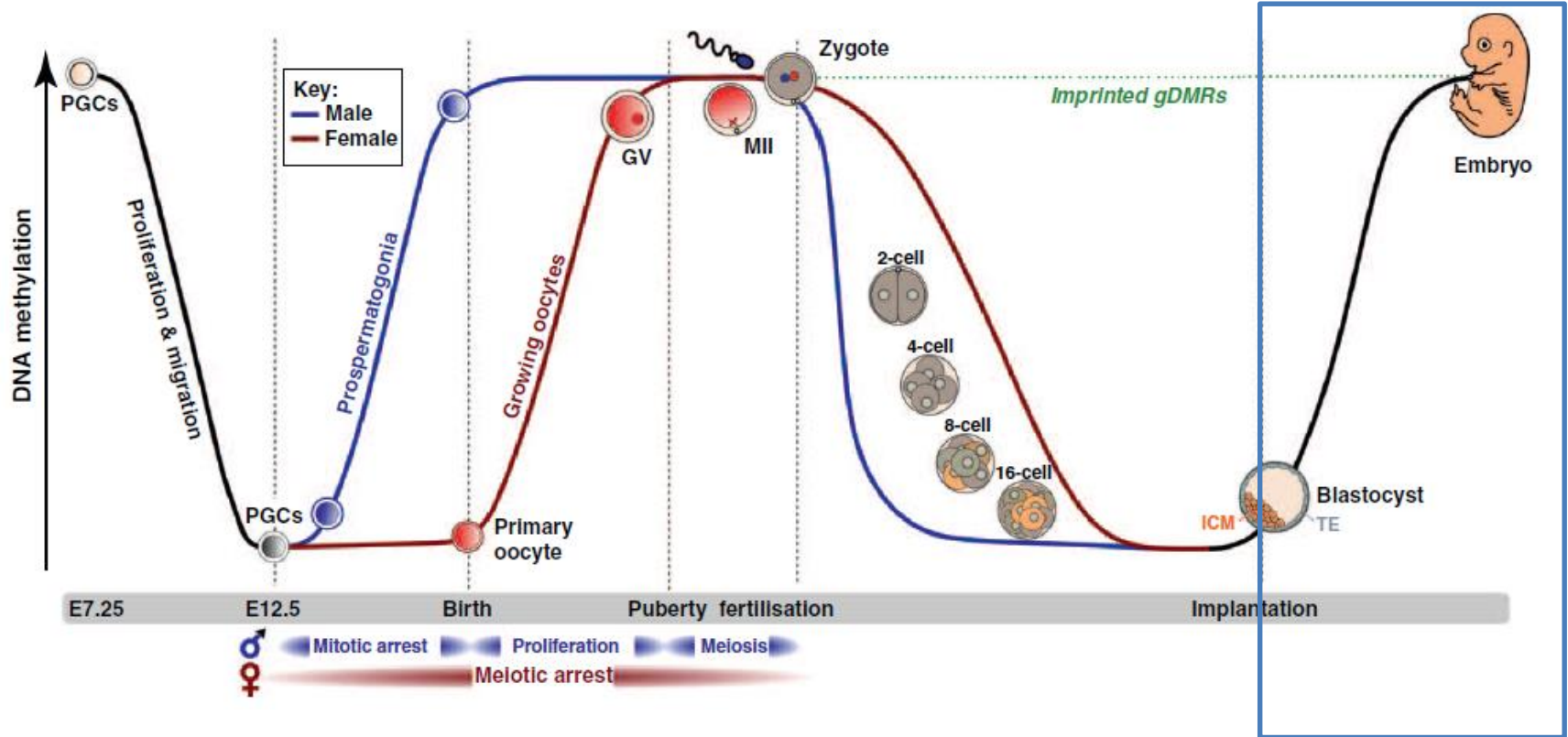
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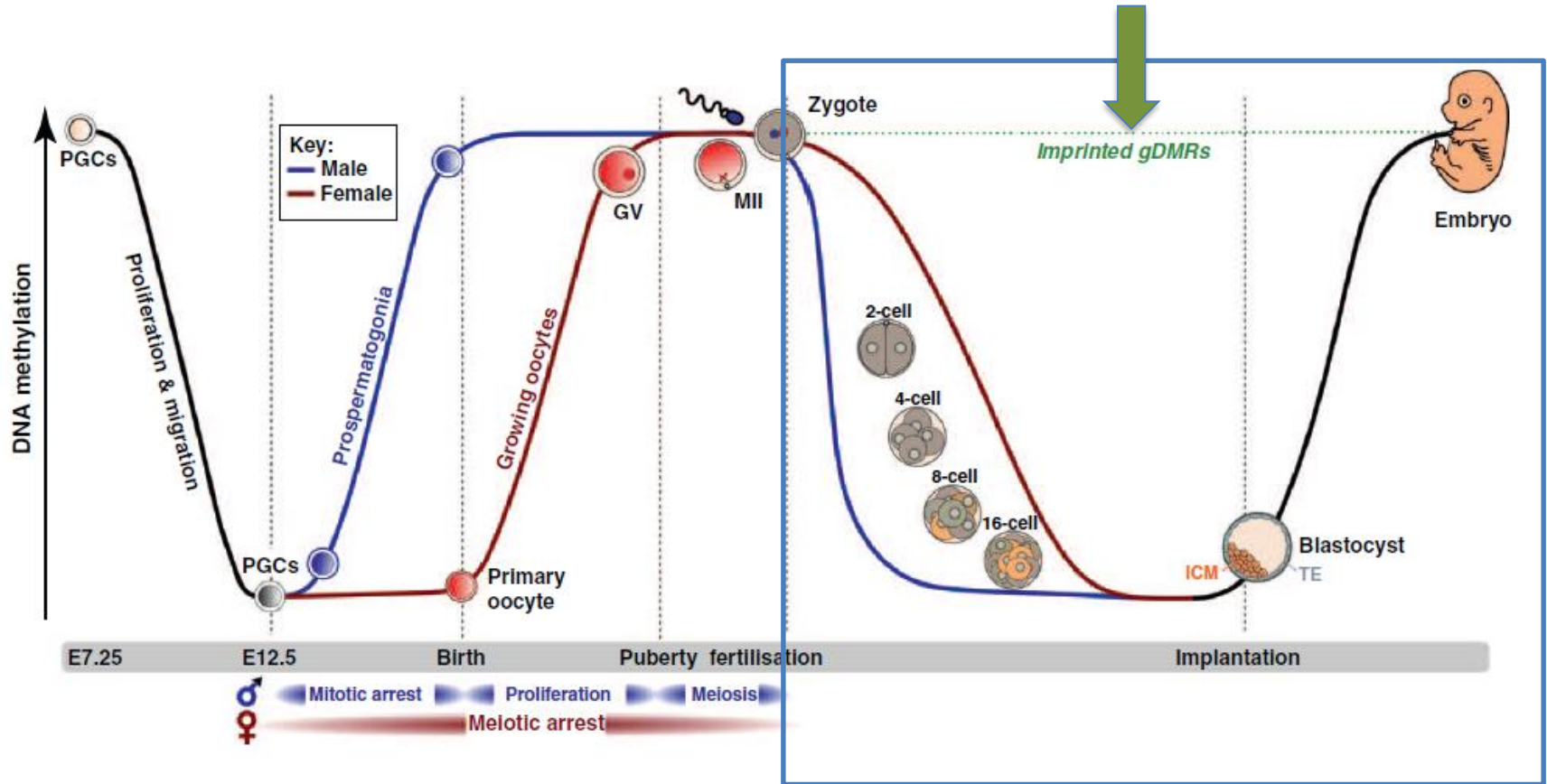
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REPROGRAMACIÓ EPIGENÈTICA

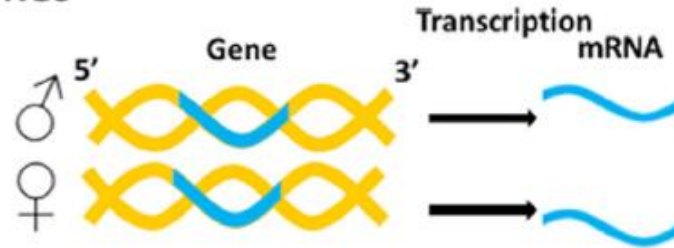


REPROGRAMACIÓ EPIGENÈTICA

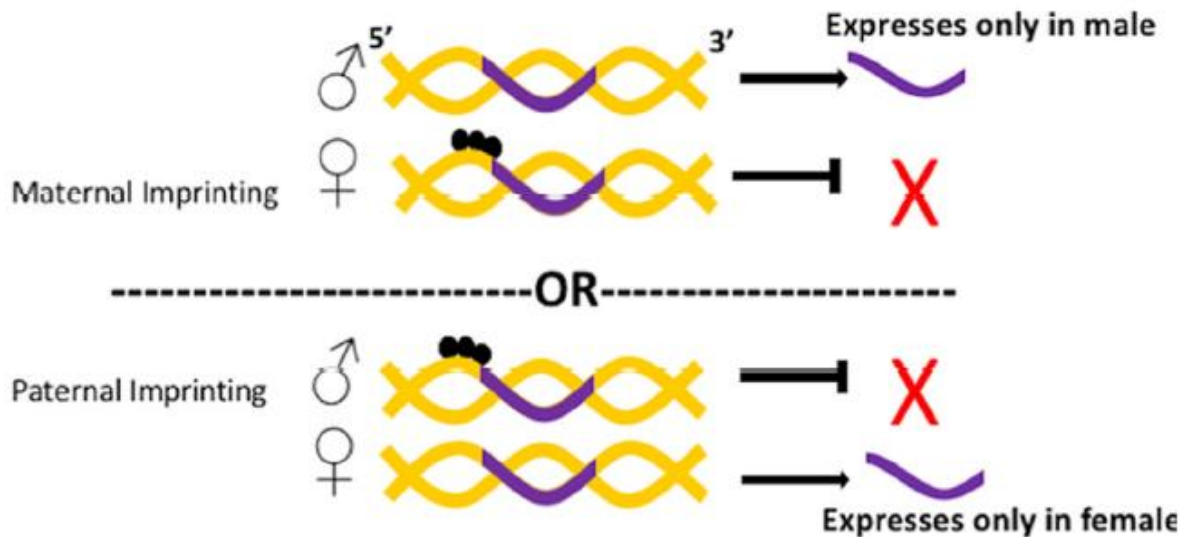


IMPRINTING

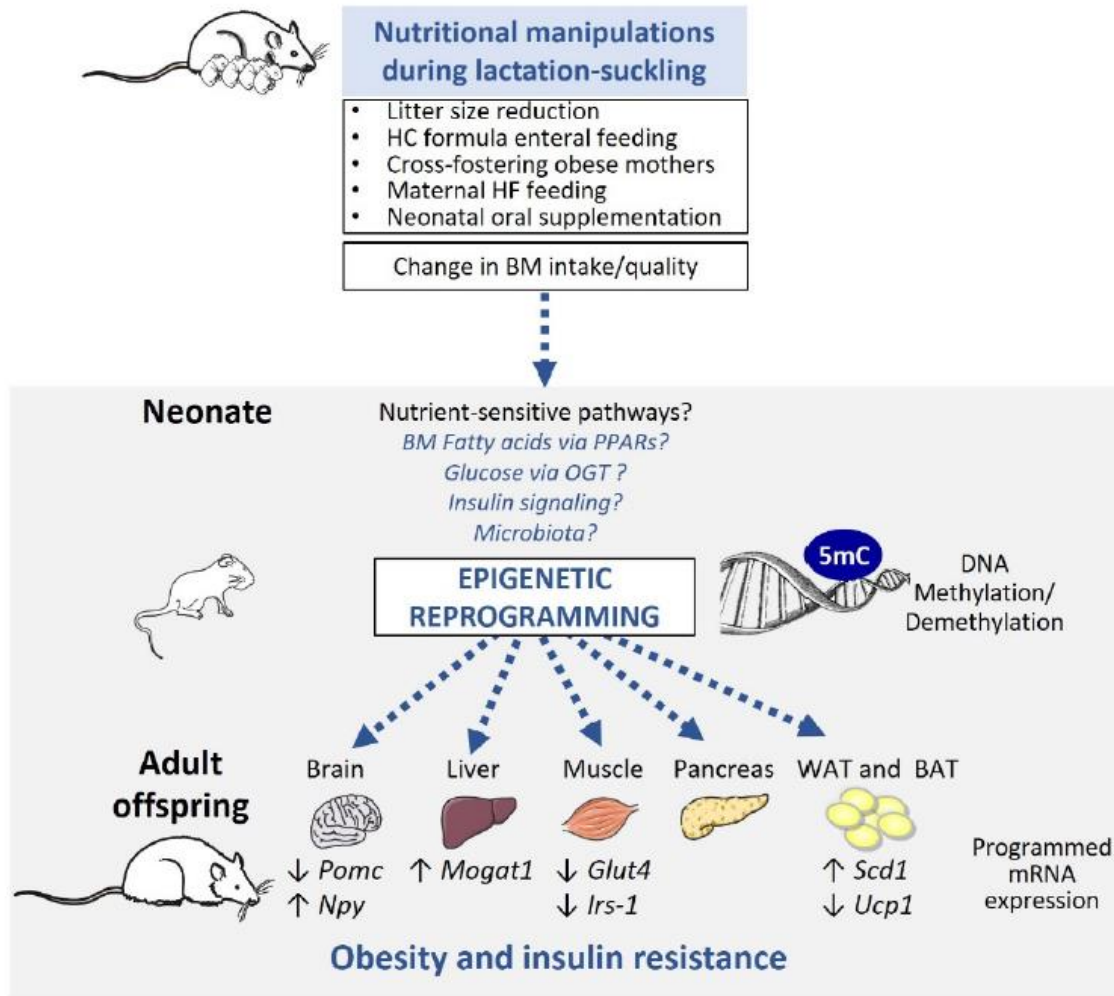
Non-imprinted genes



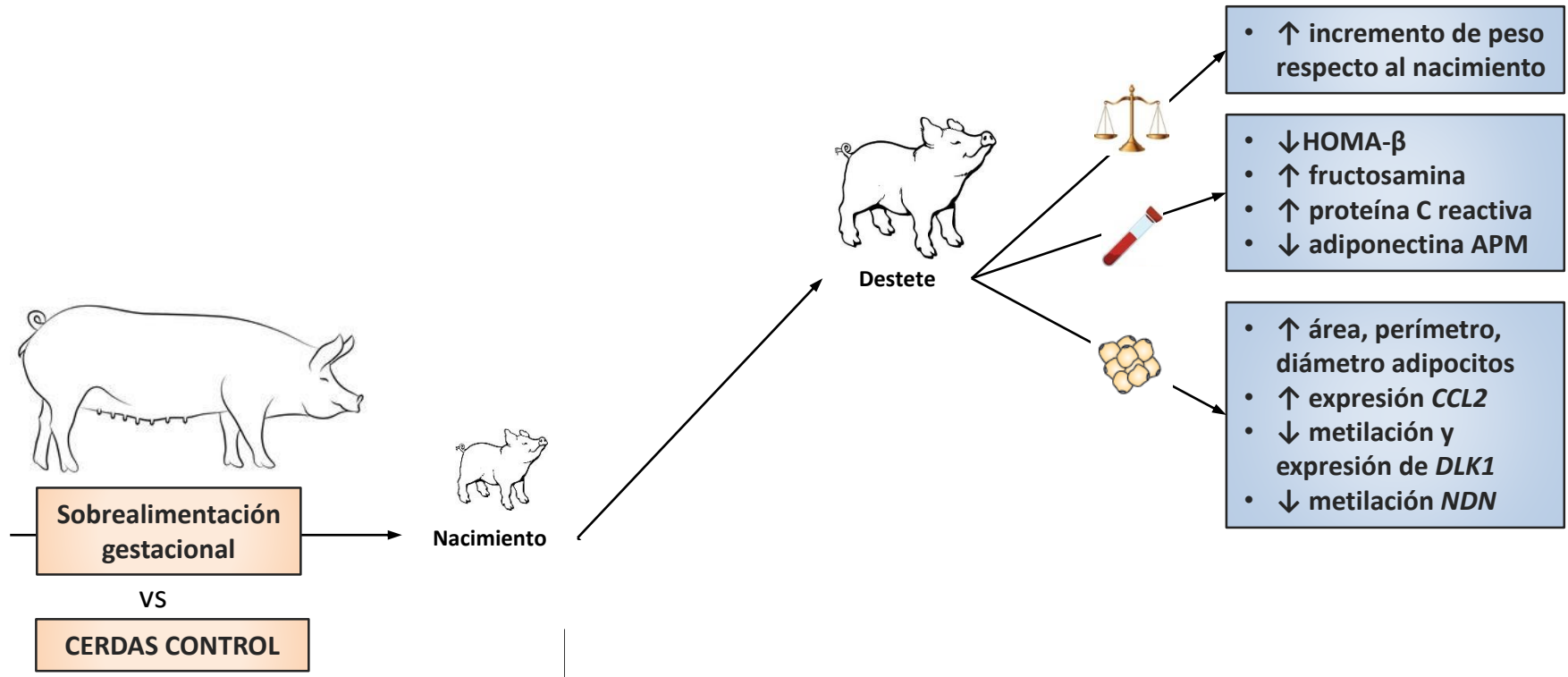
Imprinted genes



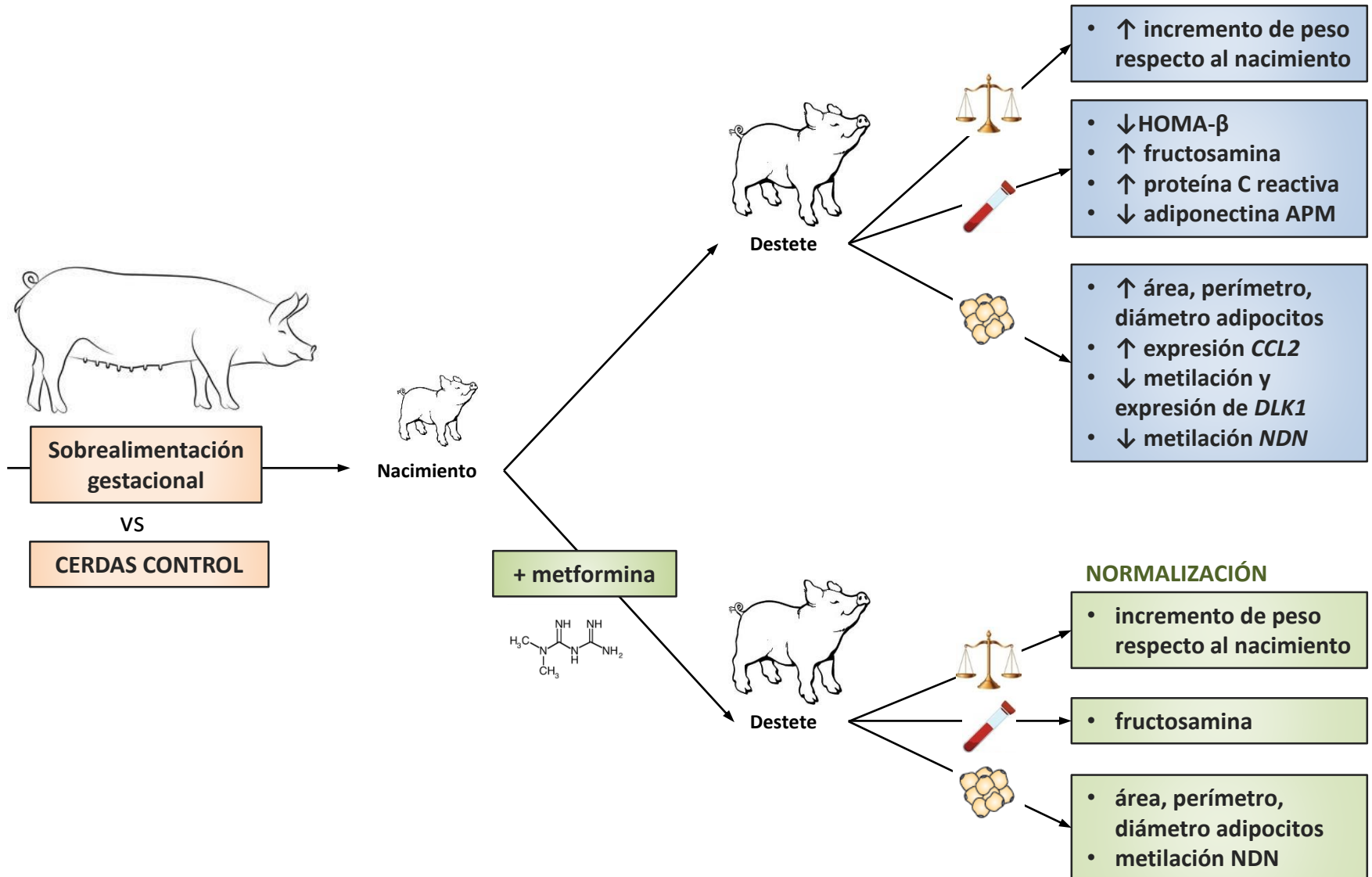
ESTUDIS EN ANIMALS



ESTUDIOS EN ANIMALES

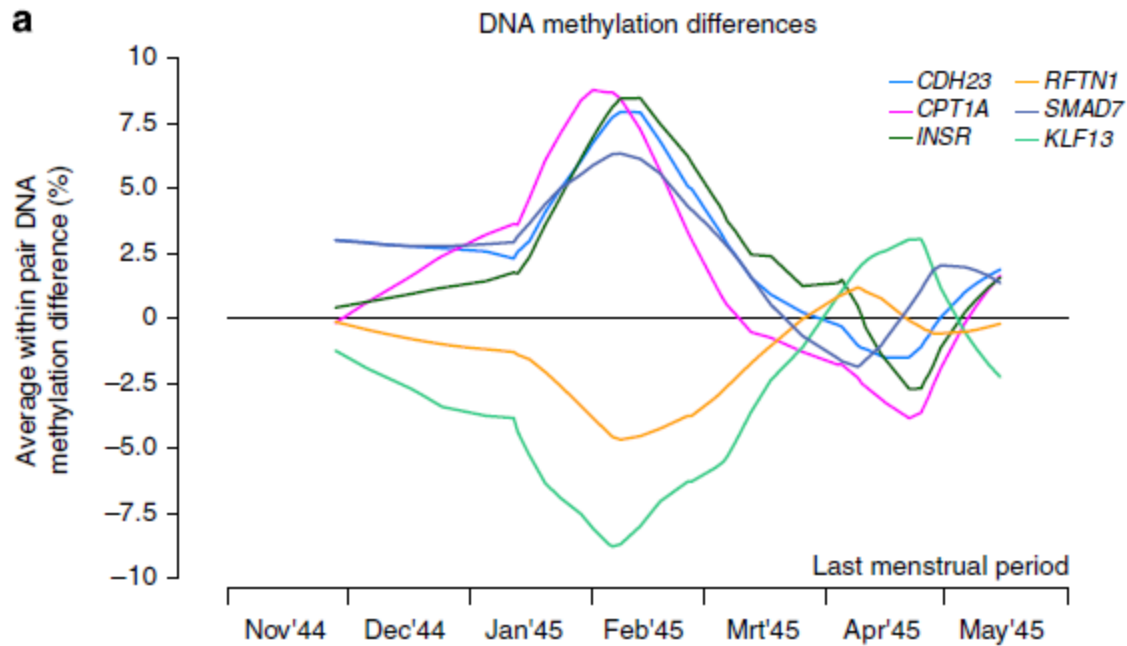


ESTUDIOS EN ANIMALES



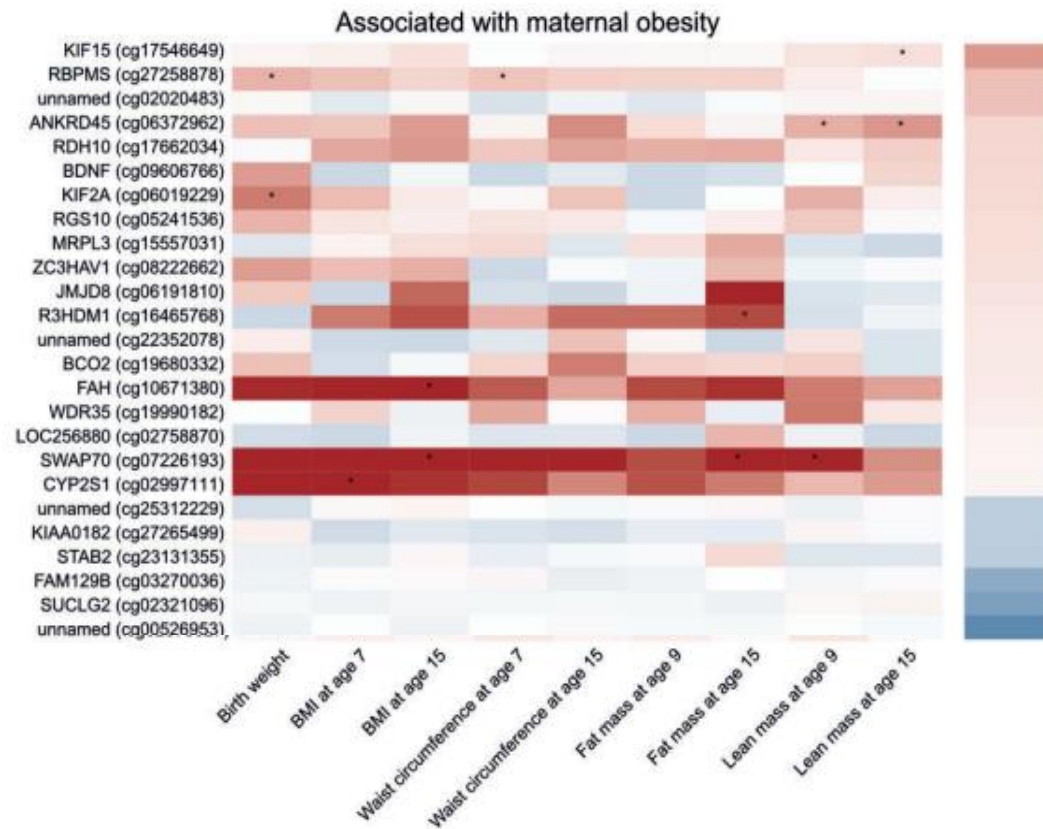
ESTUDIS EN HUMANS

Desnutrició materna “Dutch Hunger Winter”



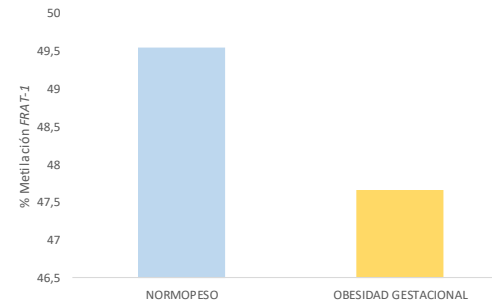
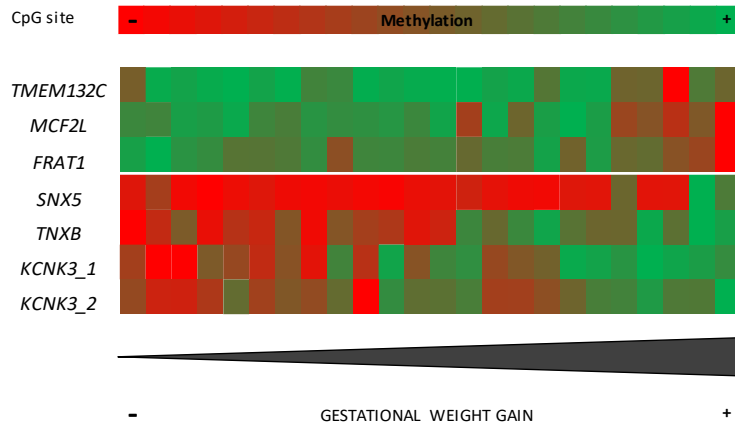
ESTUDIS EN HUMANS

Obesitat materna

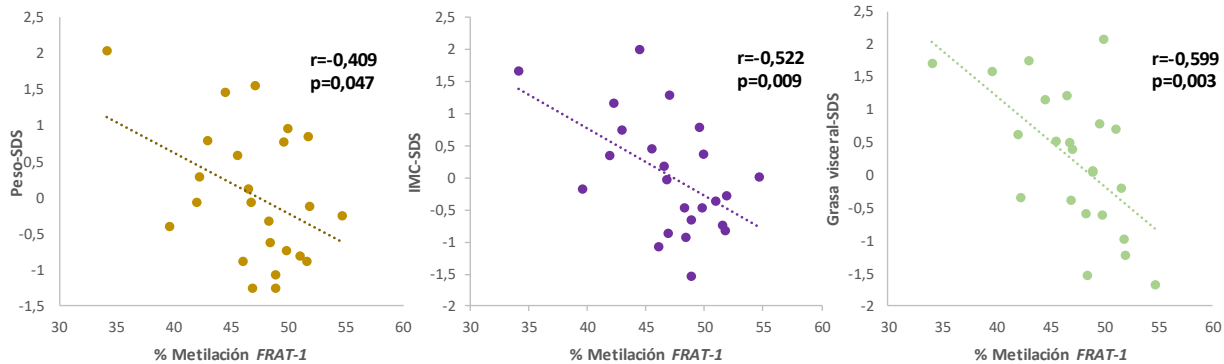


ESTUDIS EN HUMANS

Obesitat gestacional

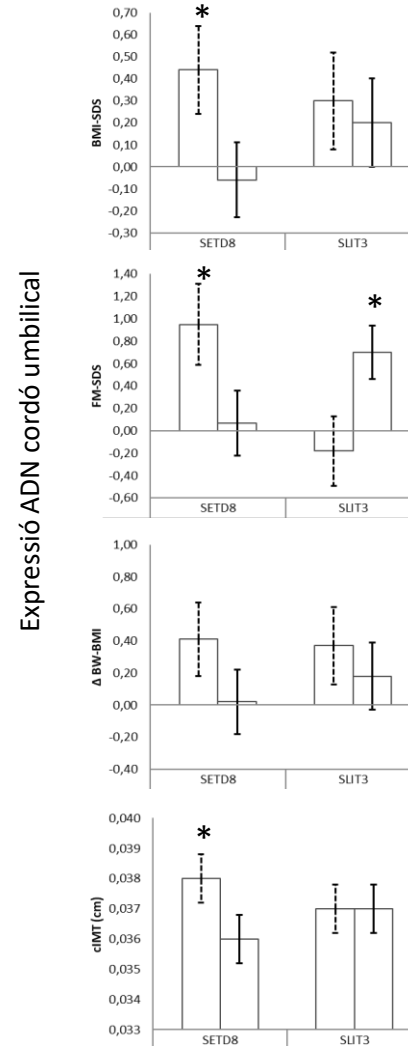
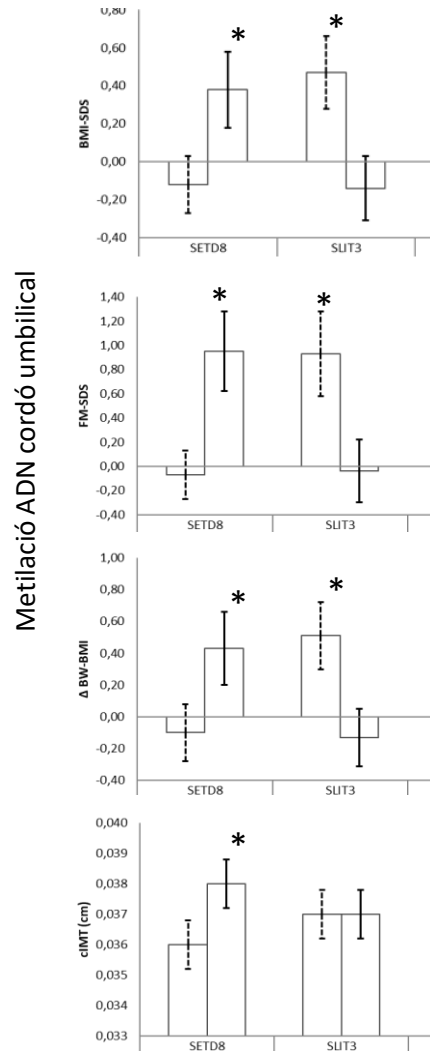


GRUPO OBESIDAD GESTACIONAL



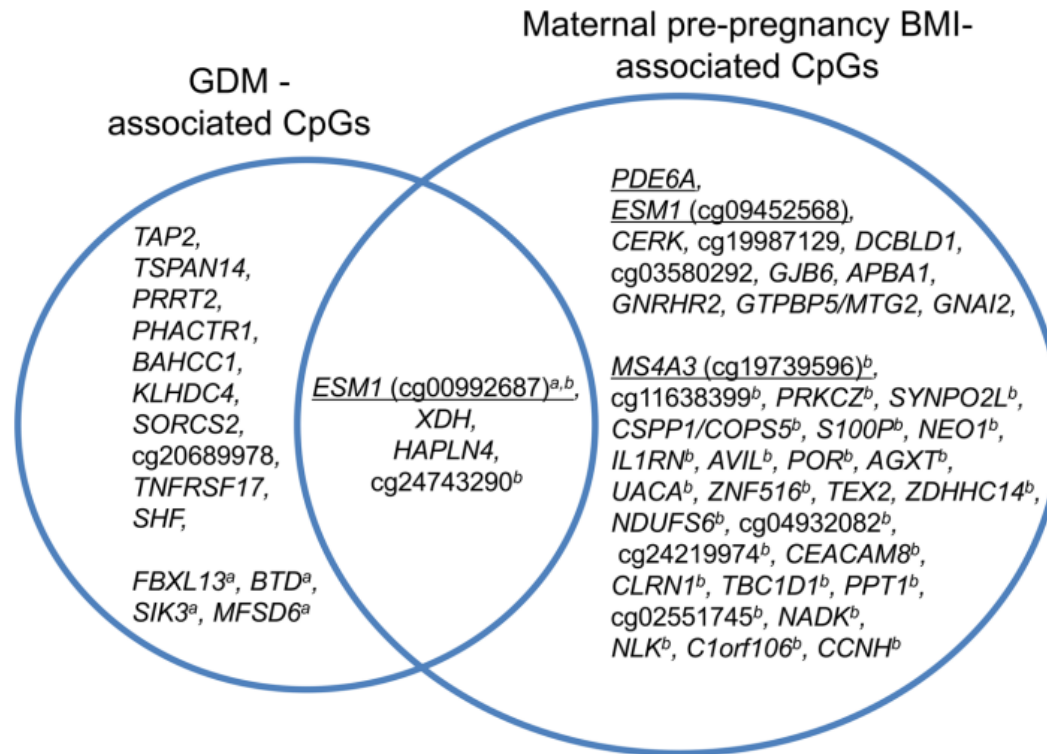
ESTUDIS EN HUMANS

Obesitat gestacional



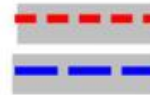
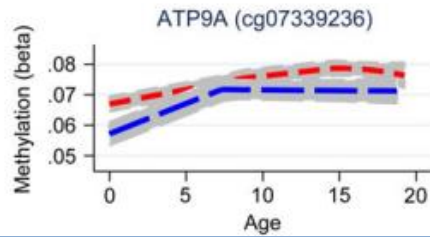
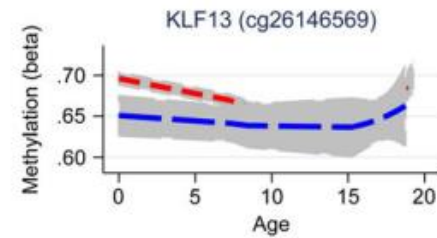
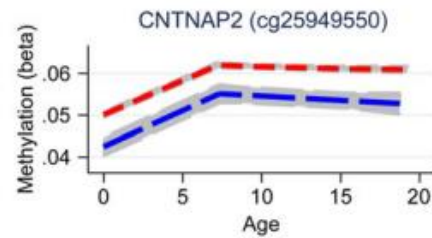
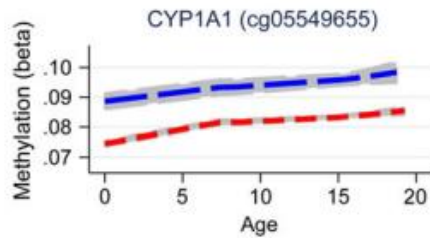
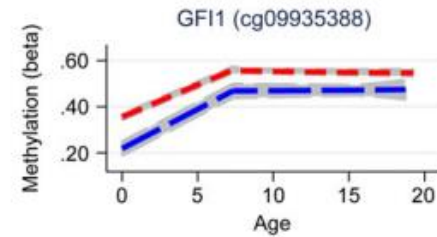
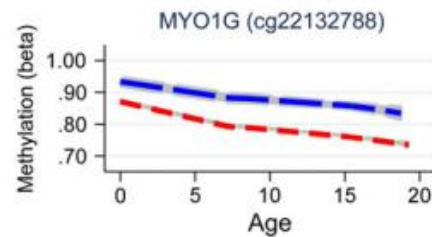
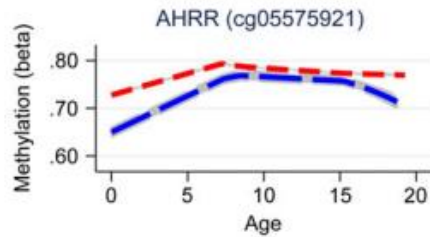
ESTUDIS EN HUMANS

Diabetis gestacional



ESTUDIS EN HUMANS

Tabaquisme gestacional

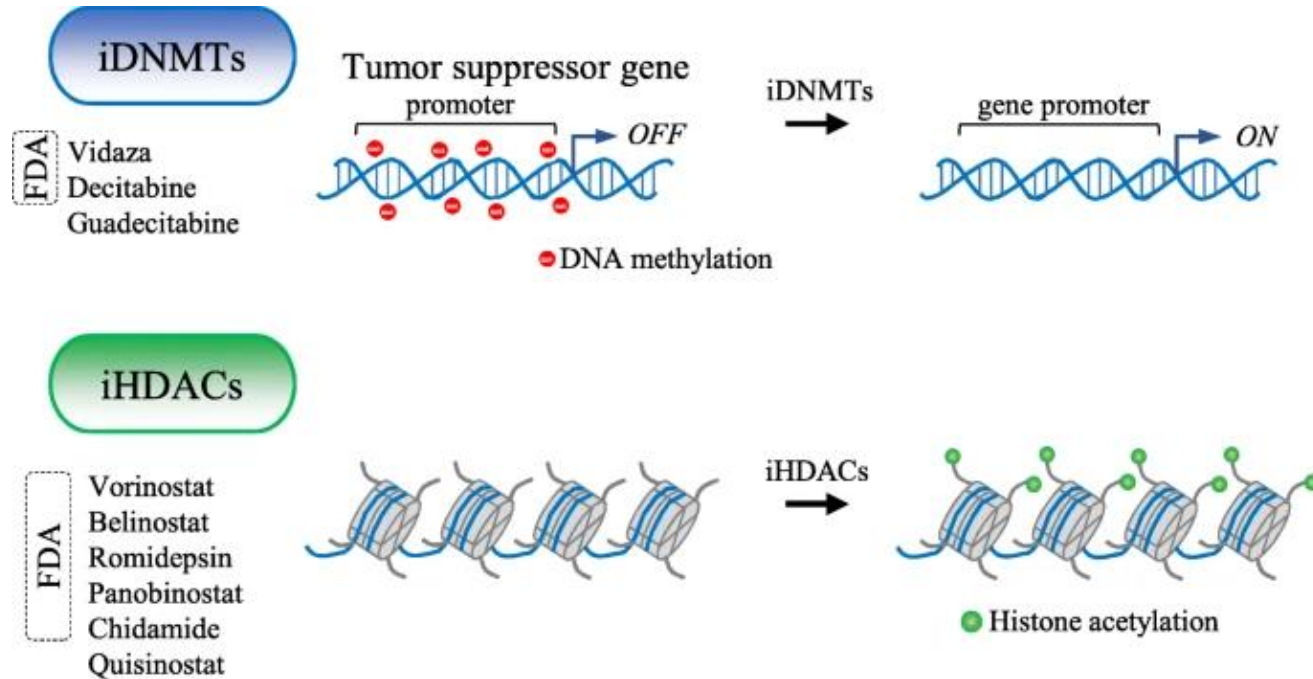


Offspring of non-smoker

Offspring of sustained smoker

APLICACIONES CLINICAS

Càncer



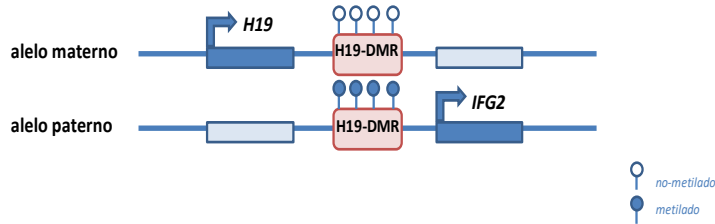
APLICACIONES CLINICAS

Desordres de creixement

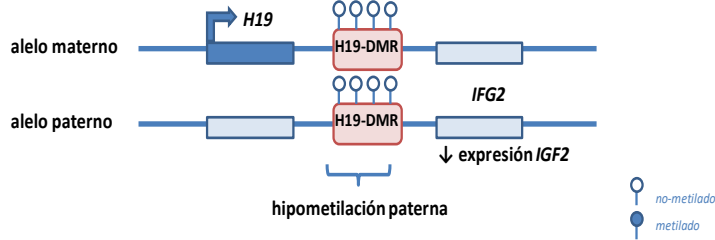


Síndrome de Silver-Russell

a) Persona sana

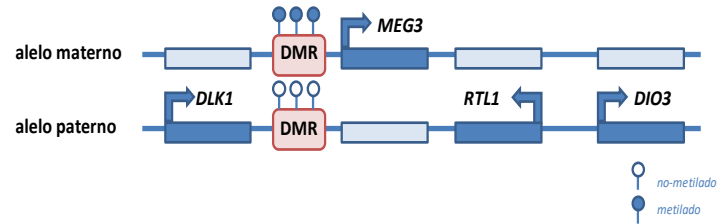


b) Persona afectada de S. Silver-Russell

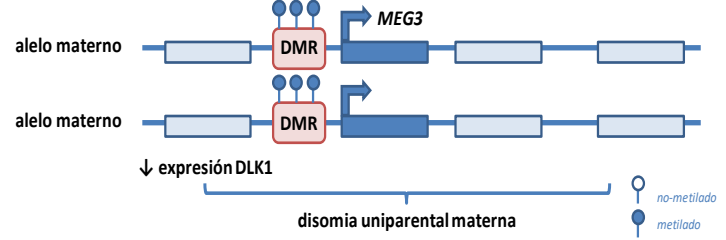


Síndrome de Temple

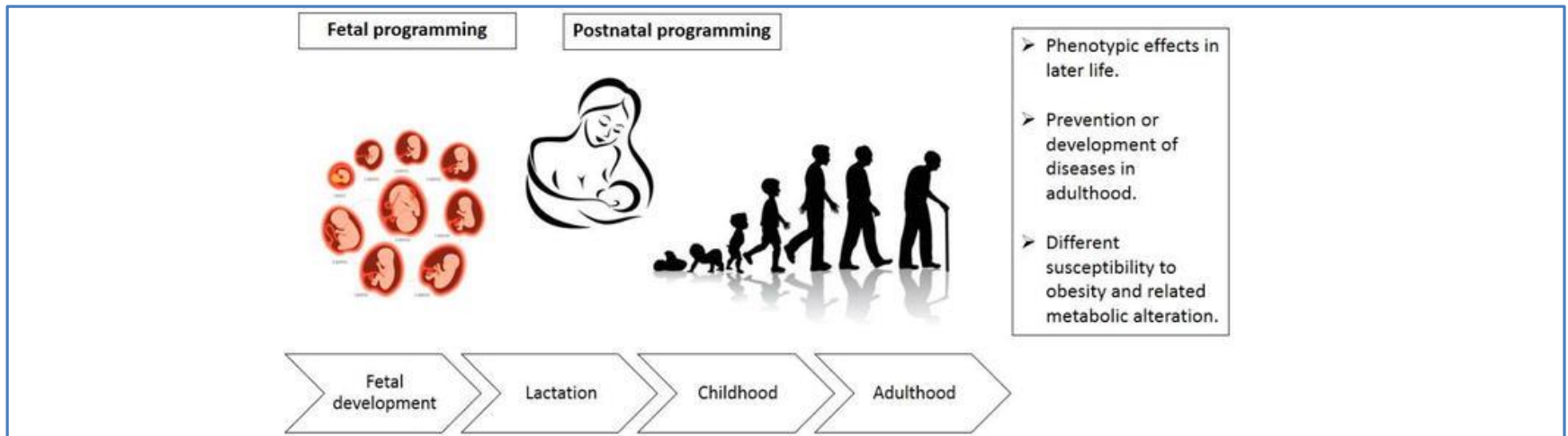
a) Persona sana



b) Persona afectada de S. Temple



CONCLUSIONS



- Les exposicions prenals adverses poden tenir conseqüències negatives per a la salut durant tota la vida mitjançant la programació fetal i postnatal.
- Aquests efectes poden estar mediat per canvis a l'epigenoma.
- La identificació d'aquestes marques epigenètiques “perjudicials” pot ser d'utilitat per conèixer la població susceptible a patir problemes a llarg termini i poder desenvolupar estratègies de prevenció.