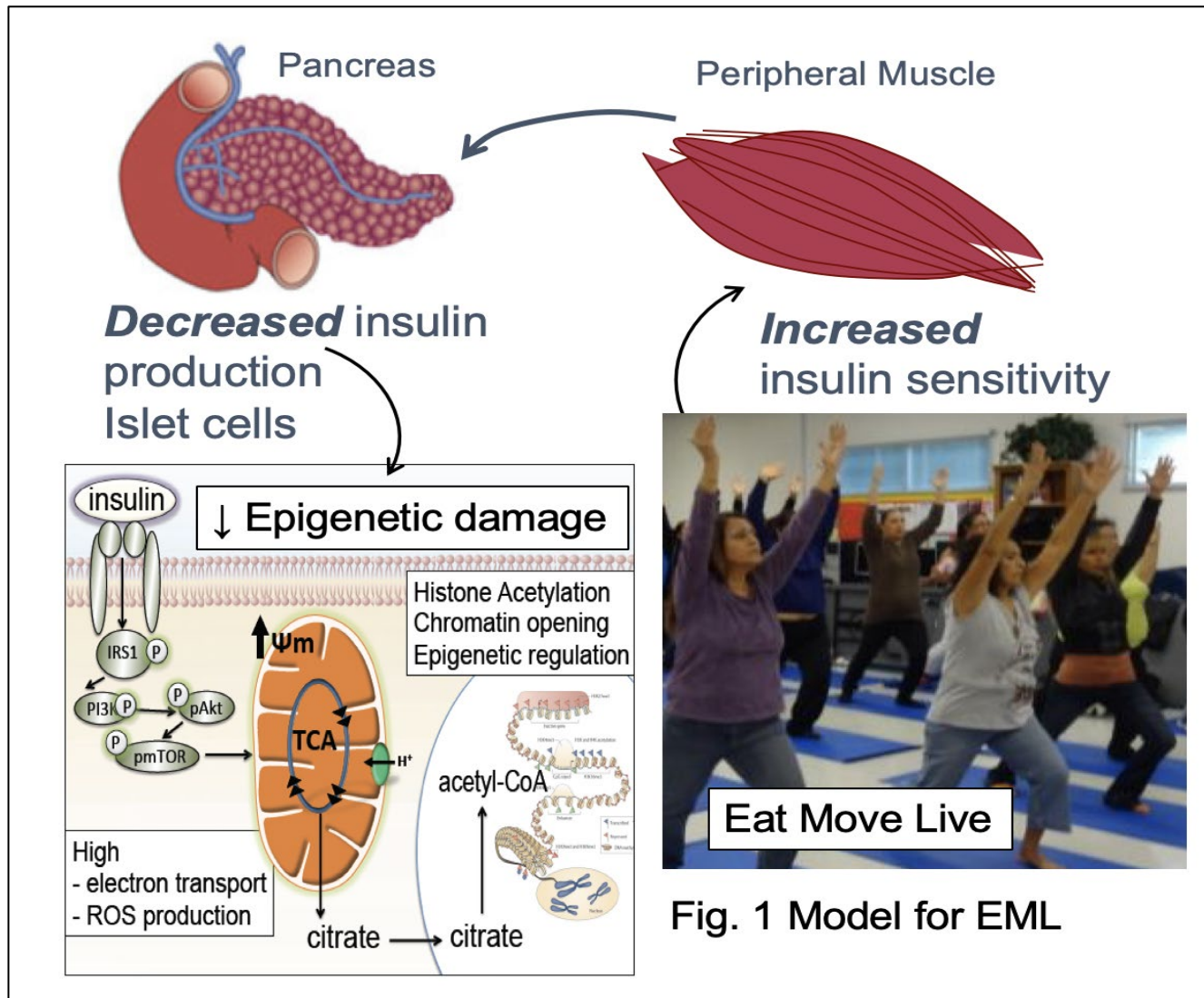
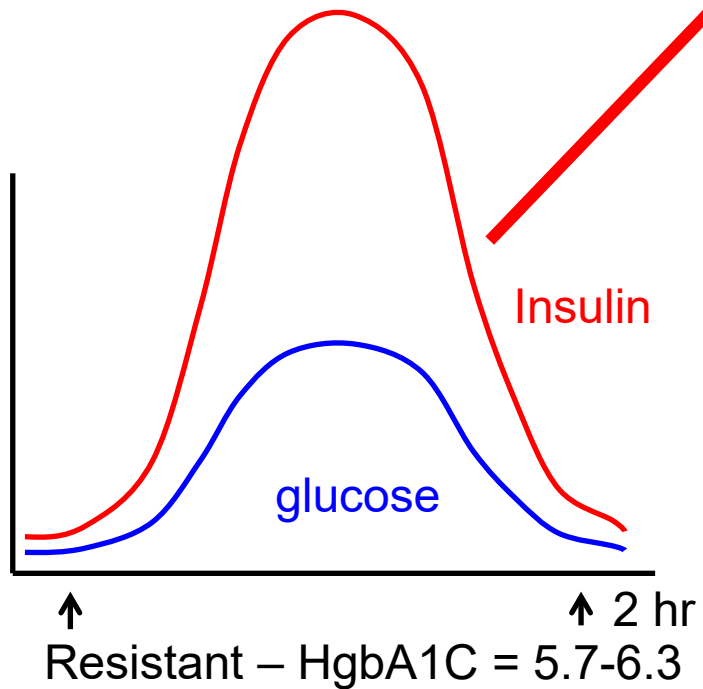
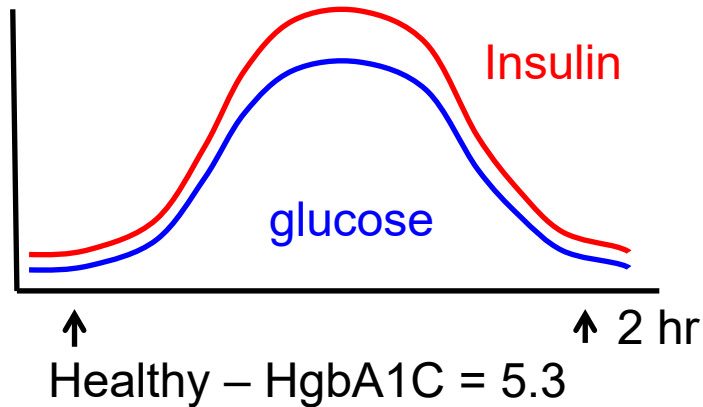


Eat Move Live – connecting the community

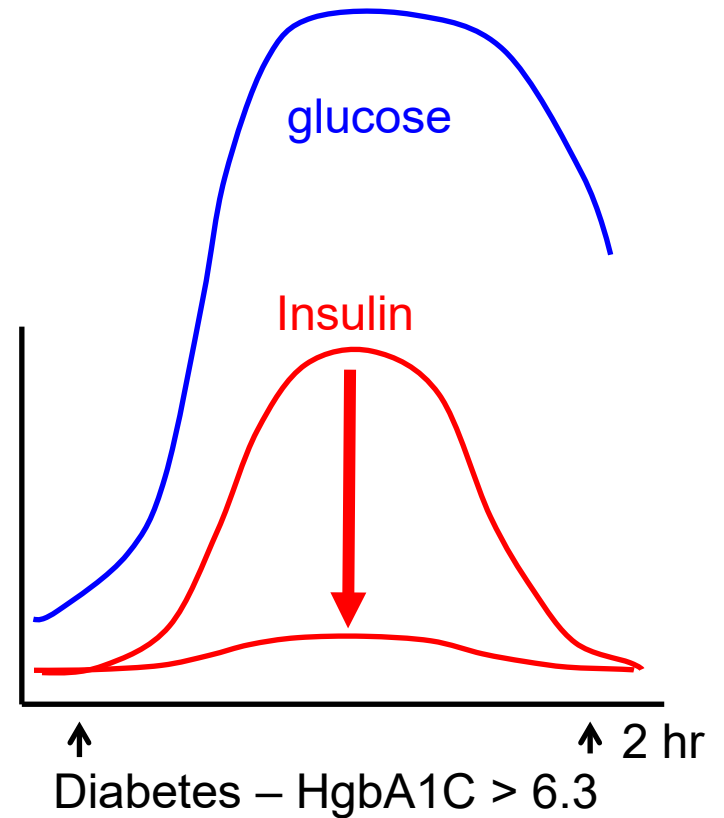


Insulin resistance and Type II Diabetes

- Increased Black/African American women
- Younger age of onset



- stimulates hunger
- promotes carbohydrate to fat
- prevents fat access (breast feeding)

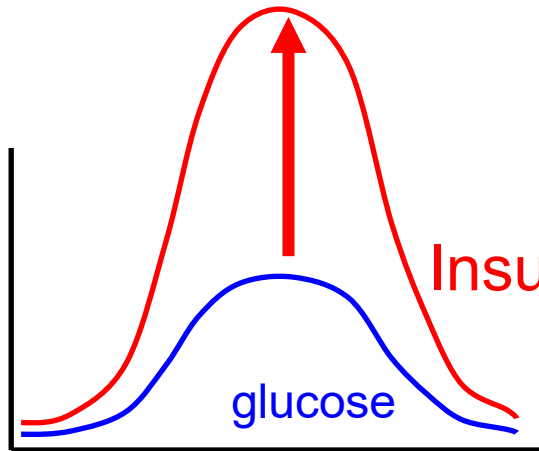


Woman: Insulin Resistant

Insulin resistance, produces high insulin



At risk breast tissue
Increased insulin sensitivity



Resistant – HgbA1C = 5.7-6.2

AKT/mTOR/glycolysis

Wnt/beta-catenin

EZH2/Notch/cMyc

Stat3

Metabolic changes after Cytotoxic Chemotherapy in women with Early-Stage breast cancer

963 women, 53% premenopausal, 47% postmenopausal

Mean age 48.2

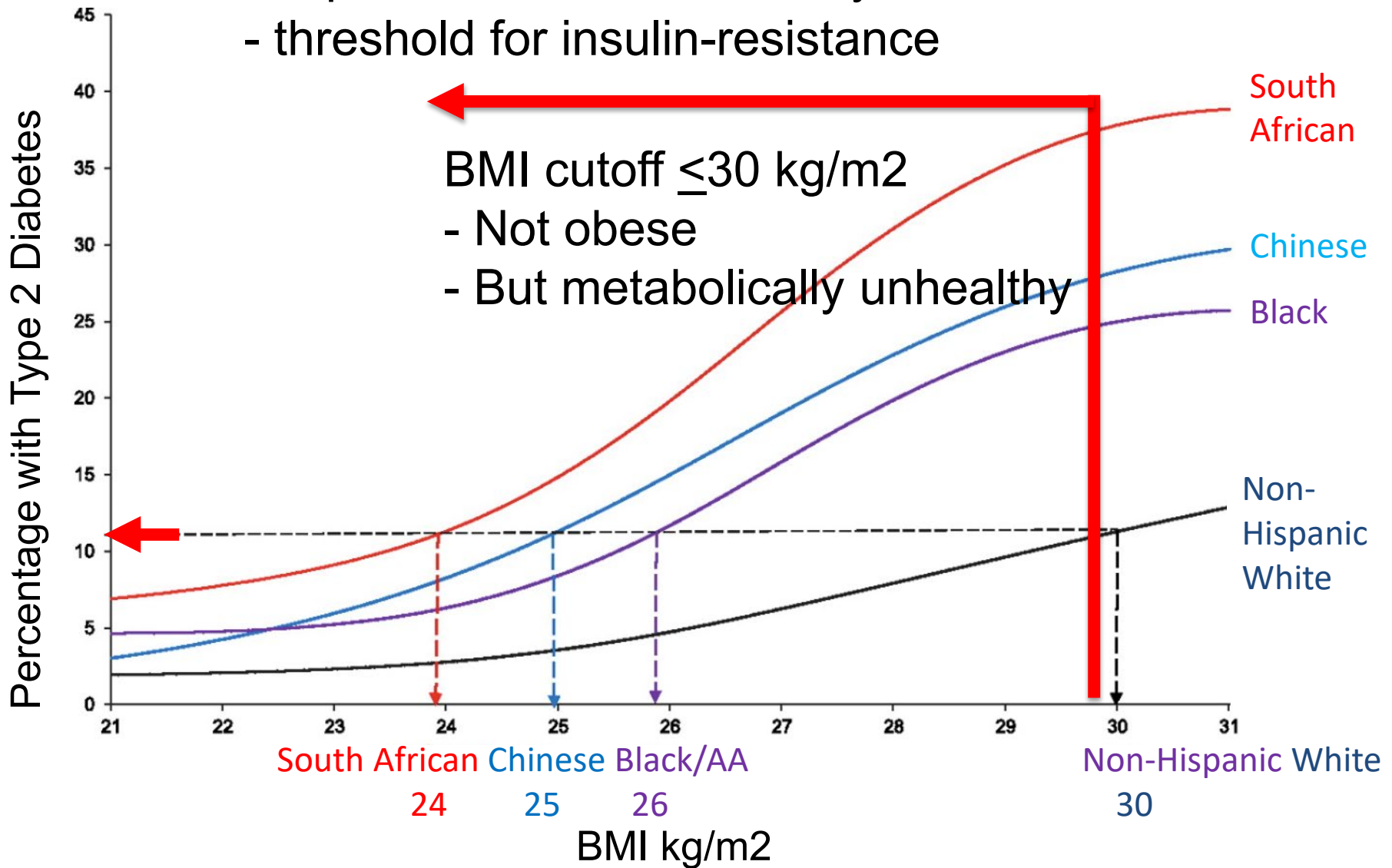
White Non-Hispanic (54%); White Hispanic (33%); Asian (7%); Black (8%)

		PRE	POST	% Change	P
Waist	Circumference	86.7(12.9)	91.7(11.2)	5.7	<0.01
BP	Diastolic	80(13)	90(18)	6.1	<0.01
Lipids					
	Total Cholesterol	185.5 (48.3)	201.9 (45.5)	8.8	<0.001
	LDL-C	100.5 (34.4)	111.1 (43.7)	10.5	<0.001
Glucose					
	Fasting insulin	18.9 (21.8)	32.6 (17.3)	73.1	0.05
	HgbA1c	5.4 (0.36)	5.9 (0.6)	8.6	<0.001

Dieli-Conwright CM, **Bernstein, L., Mortimer JE** et al. An Observational Study to Examine Changes in Metabolic Syndrome Components in Patients With Breast Cancer Receiving Neoadjuvant or Adjuvant Chemotherapy. *Cancer* 2016

BMI does not always equal metabolic potential

- importance of race/ethnicity
- threshold for insulin-resistance



BMI cutoff ≤ 30 kg/m²

- Not obese

- But metabolically unhealthy

Significant individual variability in insulin resistance



Eric
68 years old
6'3" tall
351 lbs
BMI = 42.8
Diet – high carb, red meat, candy bars
Exercise – minimal
Steps per day <500

**German
English**

**HgbA1c = 4.2
Cholesterol (total) = 148**



Vicky
58 years old
5'8" tall
135 lbs
BMI = 20.5
Diet – low carb vegetarian + salmon
Exercise – 90 min per day (swim, run)
Steps per day >5,000

**German
Eastern Europe
Asian**

**HgbA1c = 5.8 on 2,000 mg Metformin
Cholesterol (total) = 160 on statin**

Epigenetic Damage – Chromatin Opening

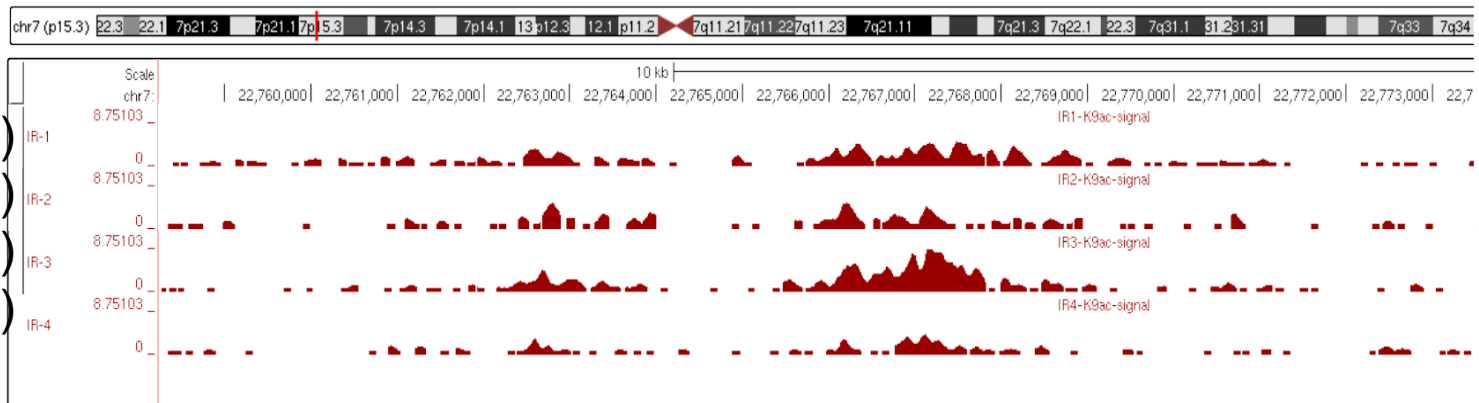
IL-6 top hit ChIP-seq

Genomes Genome Browser Tools Mirrors Downloads My Data View Help About Us

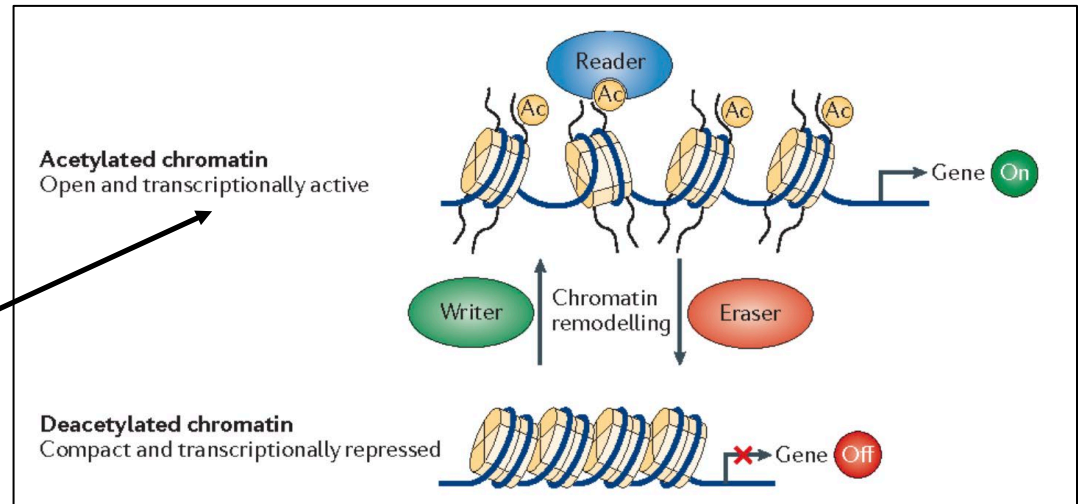
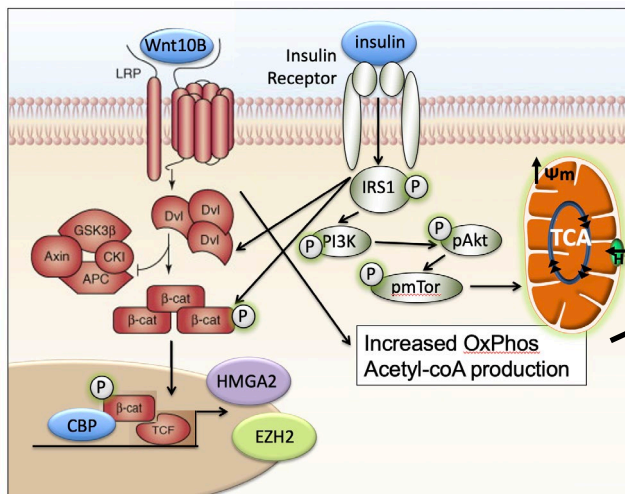
UCSC Genome Browser on Human Feb. 2009 (GRCh37/hg19) Assembly

move <<< << < > >> >>> zoom in 1.5x 3x 10x base zoom out 1.5x 3x 10x 100x

multi-region chr7:22,758,268-22,780,119 21,852 bp. enter position, gene symbol, HGVS or search terms go



IR-1 (5.9)
IR-2 (5.8)
IR-3 (6.1)
Con't (5.2)



Can Epigenetic Damage be Reversed?

