

## Article

# Methylation and expression of FTO and PLAG1 genes in childhood obesity: insight into anthropometric parameters and glucose-lipid metabolism

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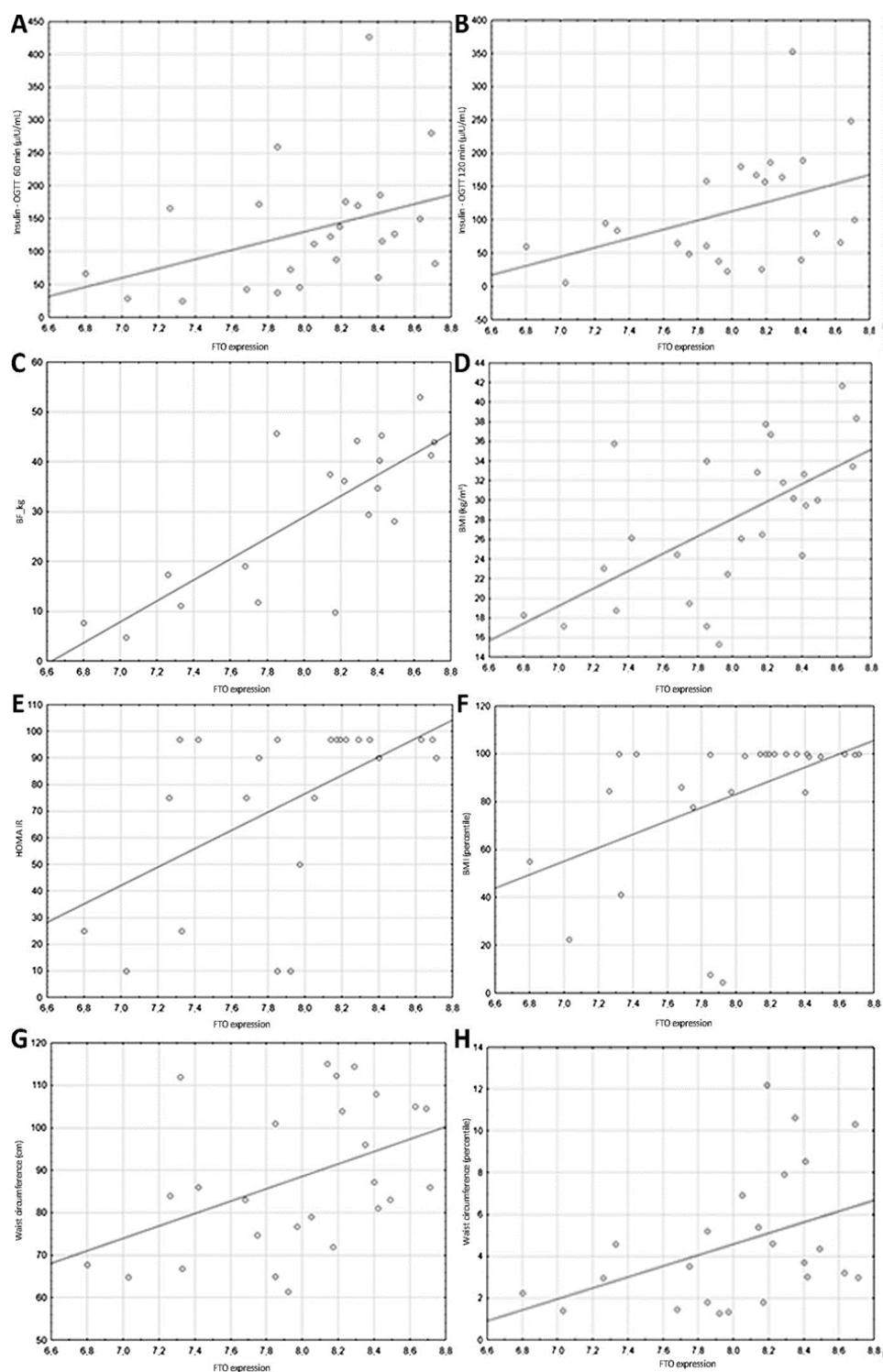
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## Supplementary

**Figure S1.** Plots presenting the distribution of data of the studied parameters depending of the level of FTO expression (shown as log2 of the absolute value of expression for clarity of the plot). A. Insulin – OGTT 60 min ( $\mu\text{IU/mL}$ ) B. Insulin – OGTT 120 min ( $\mu\text{IU/mL}$ ) C. BF\_kg D. BMI ( $\text{kg/m}^2$ ) E. HOMA-IR F. BMI percentile G. Waist circumference (cm) H. Waist circumference percentile.



**Table S1.** Descriptive statistics of the children's age

**Table S2.** Correlation results of blood pressure with FTO gene methylation, expression and PLAG1 gene expression.

Group	Age mean	Age SD	Age Q25	Age median	Age Q75
Obese children	13.8	3.0	12.8	14.7	15.7
Healthy children	14.3	1.9	12.8	14.2	15.8

Blood pressure	FTO gene region 1 methylation		FTO expression		PLAG1 expression	
	Spearman's correlation coefficient r	p value	Spearman's correlation coefficient r	p value	Spearman's correlation coefficient r	p value
Mean systolic blood pressure (mmHg)	0.212	0.319	0.196	0.359	0.141	0.512
Mean systolic blood pressure (percentile)	0.196	0.36	0.311	0.139	0.369	0.076
Mean diastolic blood pressure (mmHg)	0.132	0.537	-0.108	0.615	0.001	0.995
Mean diastolic blood pressure (percentile)	0.134	0.532	-0.332	0.743	0.177	0.409
Mean heart rate	0.033	0.879	0.095	0.657	0.209	0.327

**Table S3.** Correlation results of biochemical parameters with FTO gene methylation, expression and PLAG1 gene expression.

Biochemical parameters	FTO gene region 1 methylation		FTO expression		PLAG1 expression	
	Spearman's correlation coefficient r	p value	Spearman's correlation coefficient r	p value	Spearman's correlation coefficient r	p value
Total cholesterol (mmol/L)	0.057	0.79	0.094	0.664	-0.027	0.899
LDL cholesterol (mmol/L)	0.071	0.741	0.028	0.898	-0.008	0.969
HDL cholesterol (mmol/L)	-0.351	0.093	-0.008	0.969	-0.144	0.502
Free fatty acids – OGTT 60 min (mmol/L)	0.33	0.168	0.189	0.439	0.109	0.654
Free fatty acids - OGTT 120 min (mmol/L)	0.357	0.147	0.375	0.125	0.426	0.078
Glucose- OGTT 60 min (mmol/L)	-0.094	0.662	0.145	0.499	-0.03	0.889
Glucose- OGTT 120 min (mmol/L)	-0.217	0.308	0.052	0.809	0.142	0.509

### 3.3. Formatting of Study design

This is example 1 of an equation:

OMICRON 10 V 2017r.

METHYLATION ANALYSIS

TARGET:

Pleiomorphic adenoma gene 1 (PLAG1)

Fat mass and obesity associated (FTO)

Methylation regions, based on MethyL-DIP (Nimblegene), tissue Whole Blood (source: Ensembl).

FTO (Chr16)

Region 1 (FTO – upstream)

53703684-53703899

```
53703663 ACGCCAGCAGAACTCCAGGGCCAACTCCAGGGCCTTCTCCAGGCGGCAGAGCGGA CCCTA 53703722
53703723 GGACCCCGGCCCGCGCTGCAGTGGGGAGGGTCAGCAACCTCCACCCACCTCATCCTCCC 53703782
53703783 CCATCCTCCCGGGTACTCACCCTGCCACTGGCCCT GCAGCTAGCTACCGTTGCTATAGCG 53703842
53703843 CCGACAGCGTGGCGGGCGGCTGGCCGAGAGGAGCACGGGAGAAACATGGCAGGCTCCCGT 53703902
```

Region 3 (FTO – methylated CpG site in various cancer cell lines – data from WGBS)

54054572 (CG)

```
54054423 TTCCTGGGCAGGAAGGAGAGAATAGAGCCAAGCTGATGGAATAAACTGCGTGATTGAG 54054482
54054483 CCGGTATAAGACTGGAAATCTTTGTTACTGCCATGATGGAATACCTTGTATTAGTGCC 54054542
54054543 TCTGTCTTCGCTGAGCTGAGAAACCTCCGGTGTGTTTTGGCCATCAAACTACTTGCC 54054602
54054603 ATTGTCACCGGTAGTCCAGATTGTAAGGCTAAAGTGCTGAGGACAATTAGTAATTGGTG 54054662
54054663 ACTGGCTGCTATGATGTATAGTTGCTTAGCAACGGTGCCTGAATTAAGTCTCTGGAAGTG 54054722
```

Region 1 (PLAG1 exon1)

56211059-56211208

```
56211264 ACAATGGCTGCTGGAAAGAGGCGTAAGGAAACAATTCAGGCCCGCCGCTCCAGCCCG 56211205
56211204 AAATA TGAGAAAAAATTATTAGAAATTCGCGGGCGGTGTAGAGGCGGCGGACGGGGCG 56211145
56211144 GAGGGAGGATGTTAAAGCCCGCGGTGAGTTCTCCGGGGGTCCGGGGCGGCGGCGAGGCG 56211085
56211084 TTAGCGGGAGAAATATCAGGGTTAT TTAAATTATGGGACTAGCCGAGGGGGCAGAGGAG 56211025
```