

FABP2

Dr_Mahboob@hotmail.com :

PCR-RFLP () PPAR α FABP2
BMI (Gas Chromatography)
 ω -3 ω -6 (PUFA) (SFA)
 ω -3 ($p < /$) FABP2
PPAR α ($p < /$)
Thr54
PPAR α Lue162 Val162 FABP2 Ala54
Lue162 Ala54 Val162 Thr54
Thr54 ω -3 ω -6 PUFA SFA
Ala54
DNA

(Lusis 2000)

Hokanson)

(1995; Bingham 2002; Arab 2003

(and Austin 1996

Steinberg et al.)

1997; Kooner et al. 1998; Carlsson et al.
(2000; Lind et al. 2000

(Jouven et al. 2001)

(Masson et al. 2003)

(FABP)

Agostoni et al. 1994;)

(Scaglioni et al. 2006

(FABP2)

TG

HDL-C

(Wajchenberg 2000;Denke 2001)

(A54T)

A54T

FABP2

(Baier et al. 1996; Levy et al. 2001)

Garaulet et al. 2001;)

(Vessby 2003; Tremblay et al. 2004

(Georgopoulos et al. 2000; Ribalta et al. 2005)

FABP2

(Aro 2003)

Vessby)

FABP2

(2000; Riccardi et al. 2004

)

(

(

)

MUFA Saturated Fatty Acid SFA)

(Monounsaturated Fatty Acid

(Polyunsaturated Fatty Acid (PUFA)

Ma et al.) .

/

$$n = \left(\frac{[Z_{1-\alpha/2}] + [Z_{1-\beta}]}{d} \right)^2 \quad \text{where } d = \frac{|\bar{D}_1 - \bar{D}_2|}{\sqrt{2\sigma_d^2}}$$

$$d = \frac{|\bar{D}_1 - \bar{D}_2|}{\sqrt{2\sigma_d^2}} \quad \text{if } \bar{D}_1 - \bar{D}_2 = 2mm/l$$

$$d = \frac{2}{3.3} = 0.61 \quad n =$$

(Germany) Seca
BMI

Ala54Thr
%

$\times g$
 μL C

(
FABP 2

Thr 54 Ala/Ala

()
) HDL-CL LDL-CL

VLDL (Roche, Germany)
Optima TL X (d<1.006 g / L)
rpm (fixed-angle, BECKMAN, USA
16 °Cflnj 2

ApoB (Ordovas 1998)
()

- ApoCIII
(Radox, England)

Gas)
(chromatography

: (GasChoromatography)
Folch

Ala/Ala
Ala/Thr

Folch et al.)
(1957

($H_0 = \bar{D}_1 = \bar{D}_2$)
1- $\beta = 0.80$ $\alpha = 0.5$
 $\alpha = /$ $\beta = /$

Thr54 allele
 Ala54 allele bp
 bp bp
 : PPAR α Lue162Val (BF3)
 PPAR α Lue162Val
 (C) (G) °C
 Mismatch PCR (/) HCl
 Forward : 5-GAC TCA AGC TGG TGT
 Reverse – Misatch : 5- ATG ACA AGT -3
 CGT TGT GTG ACA TCC CGA CAG AAT
 Mismatch) -3
 Vohl et al.)(Reverse Primer
 () Hinf I .(2000
 bp PCR
 Allele bp
 bp Allele
 : PPAR α
 PCR – RFLP
 DNA
 (Amplification)
 Forward : 5-ACA ATC ACT
 Reverse : CCT TAA ATA TGG TGG -3
 TAG GGA CAG ACA GGA CCA 5-AAG
 .(Jamshidi et al. 2002) GTA -3.)(24 l
 Taq I
 GG
 CG bp
 bp
 :
 One Sample Kolmogrove–Smirnov
 Doc System
 50 bp ladder

Genamic DNA : DNA ()
 Qiagene ,) Flexi Gene DNA Kit
 (GmbM, Germany
 DNA
 : FABP2 Ala54Thr
 Polymerase)
 Chain Reaction –Restriction Fragment
 Length Polymerase) PCR-RFLP
 PCR DNA Amplification ..
 Forward : .
 5-ACA GGT GTT AAT ATA GTG AAA
 Reverse : 5-TAC CCT GAG AG -3
 Vimalleswaran) TTC AGT TCC GTC -3
 μ L .(et al. 2006
 μ L hin61 / μ L PCR
 μ L X Tango
 °C (overnight)
 °C
 % PCR

Kunesova et al. 2002;) (t .
 (Dwyer et al. 2004 -

) n-16 () n-14 FABP2
 Thr54 () n-18 () PCR-RFLP
 Ala54 % / .
 Ala54 Thr54 % / Val162
 Thr54 (AA) ,FABP2 . GC
 Ala54 Thr54
) Thr54
 .(Thr54 Ala54

Finn EPA ($p < /$) α ($p < /$)
 ($p < /$)PUFA ($p < /$) SFA ($p < /$)
 $\omega - 3$ ($p < /$) $\omega - 6$ ($p < /$) MUFA
 Ala54 Thr54 ($p < /$)
 .()
 Val162 Lue162) PPAR α
 (GC GG

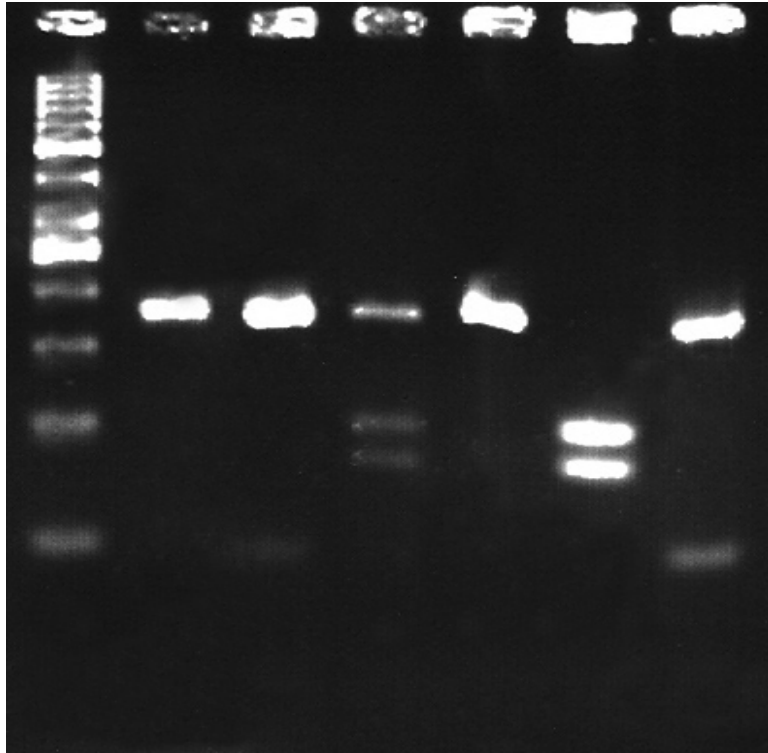
Rossner et al. 1989;) .
 (Tremblay et al. 2004
 in-vivo FABP2

Finns de novo
 Pima (Vidgren et al. 1997) Ma et al. 1995; Salo)
 Thr54 Ala54 Vessby ;et al. 2000; Warensjo et al. 2006
 .(2003

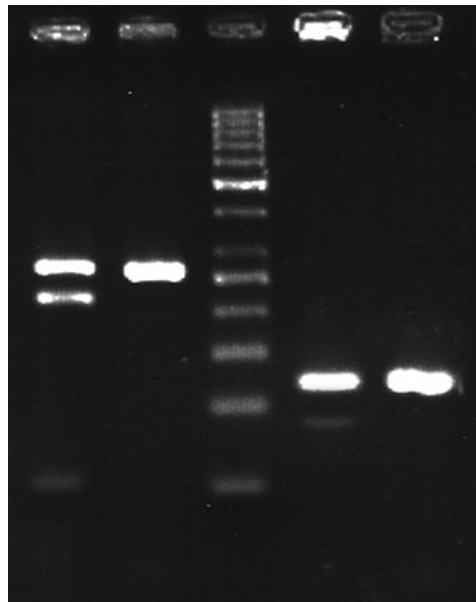
(AA) .(Pratley et al. 2000))
 Ala54 Thr54

| | | | |
|-----------------------------|--------------------------------|---------------------------------------|-------------------------|
| (SFA) | | | |
| | ω -3 ω -6 (PUFA) | | |
| Ala54 | Thr5 | Decsi et al. 1996; Samuelson et al.) | |
| | FABP2-Thr54 | | (2001 |
| | FABP2-Ala | | |
| (Marin et al. 2005) | | | (LCPUFA) |
| | | | Decsi |
| | | | .(Decsi et al. 1996) |
| | SFA | | |
| | PUFA /SFA | | TG (AA/ LA) |
| | (PUFA) | | |
| | | | TG (AA/DGLA) |
| | .(Klein-Platat et al. 2005) | | |
| | n-3 PUFA SFA | Thr54 n-6 | |
| Klein-Platat). | | Ala54 | |
| | .(et al. 2005 | n-6 | |
| | PUFA n-3 | .(Decsi et al. 1996) | |
| .(Rossner et al. 1989) | | | |
| | PUFA n-3 | | .(Phinney et al. 1994) |
| (Klein-Platat et al. 2005) | | | |
| | PUFA n-3 | | |
| .(Klein-Platat et al. 2005) | | | .(Nakamura et al. 2001) |
| n-3 | | | |
| | Thr54 | EPA | (AA) |
| | | Ala54 | |
| | | | Gasperikova et al.) |
| | | | (AA) |
| | | | .(2002 |

Lue162Val Thr54
 Baier et al.) Ala54
 val162 Lue162 . (1995
 Val162 Thr54
 PUFA n-3 22-6n-3
 .(Couet et al. 1997)
 Finn
 (Urban et al. 1989).
 PUFA
 Garaulet et al.) . SFA
 (2001
 Thr54
 FABP2 Ala54
 PPAR α Lue162 Val162
 Ala54 Val162 Thr54 . (Garaulet et al. 2001)
 Lue162
 PUFA SFA Thr54
 ω -3 ω -6
 Ala54 Thr54 TG PUFA n-3
 Vessby) . HDL-CL
 .(2003; Riccardi et al. 2004
 Lue162Val PPAR α
) FABP2
 () ()
 Val162 Lue162
 FABP2
 PPAR α Lue162Val



(B) PPAR α (A) FABP2 PCR-RFLP –
 Ala54 / Thr (bp) Thr54/Thr (bp) Ladder : (A
 (bp) Ala54/Ala (bp bp)



bp) Lue162/Val (bp) Lue162/Lue : (B
 (bp) GC (bp) GG (bp) Ladder (bp)

| P value* | | | | |
|----------|-------|-------|-------|-------------------|
| | () | () | () | |
| - | () | (/) | (/) | |
| / | () | (/) | (/) | Thr54 carriers(%) |
| / | (/) | (/) | (/) | V162 carriers (%) |
| / | (/) | (/) | (/) | C7 carriers (%) |
| / | / ± / | / ± / | / ± / | Age |
| / | / ± / | / ± / | / ± / | BMI |
| / | / ± / | / ± / | / ± / | TG (mg/dL) |
| / | / ± / | / ± / | / ± / | Total CL (mg/dL) |
| / | / ± / | / ± / | / ± / | LDL-CL (mg/dL) |
| / | / ± / | / ± / | / ± / | HDL-CL (mg/dL) |
| / | / ± / | / ± / | / ± / | VLDL (mg/dL) |
| / | / ± / | / ± / | / ± / | FBS (mg/dl) |
| / | / ± / | / ± / | / ± / | APOB (mg/dL) |
| / | / ± / | / ± / | / ± / | APOCIII (mg/dL) |

Mean±SD t *

FABP2

| P valve*** | (µg/ml) | | Fatty acids |
|------------|--------------------|----------|-------------------|
| | Ala/Thr Thr/Thr | = = * | |
| / | / ± / | / ± / | (C14:0) |
| / | / ± / | / ± / | (C16:0) |
| / | / ± / | / ± / | (C18:0) |
| / | / ± / | / ± / | (C18:1, n-9) |
| / | / ± / | / ± / | (C18:2n-6) LA |
| / | / ± / | / ± / | (C20:0) |
| / | / ± / | / ± / | (C18:3, n-6) GLA |
| / | / ± / | / ± / | (C20-1) |
| / | / ± / | / ± / | (C18:3, n-3) |
| / | / ± / | / ± / | (C20:2, n-6) |
| / | / ± / | / ± / | (C22:0) |
| / | / ± / | / ± / | (C20:3, n-6) DGLA |

| | | | | | |
|---------|------------|-----------|----------------------|------------|-----|
| / | / ± / | / ± / | (C20:3, n-3) | | |
| / | / ± / | / ± / | (C20:4, n-6) AA | | |
| / | / ± / | / ± / | (DDA, C22:2, n-6) | | |
| / | / ± / | / ± / | (C20:5, n-3) EPA | | |
| / | / ± / | / ± / | (C24:1) | | |
| / | / ± / | / ± / | (C22:6, n-3) DHA | | |
| / | / ± / | / ± / | | | |
| / | / ± / | / ± / | MUFA | | |
| / | / ± / | / ± / | PUFA | | |
| / | / ± / | / ± / | n-6 | | |
| / | / ± / | / ± / | n-3 | | |
| / | / ± / | / ± / | | | |
| / | / ± / | / ± / | EPA | DGLA | AA |
| / | / ± / | / ± / | | n3 | n 6 |
| Mean±SE | | | | | |
| | Ala54Thr54 | Thr54/Thr | | Thr54 /Thr | * |
| | | | Ala54/Thr +Thr54/Thr | Ala54/Ala | ** |
| | Ala54/Ala | | Ala54/Thr+Thr54/Thr | t | *** |

(GC GG Lue/Val Lue/Lue)PPARα

| μg/ml | | | | | | Fatty acids |
|----------|-------|-------|----------|--------|---------|-------------------|
| P value* | GC | GG | P value* | Lue/Va | Lue/Lue | |
| / | / ± / | / ± / | / | / ± / | / ± / | (C14:0) |
| / | / ± / | / ± / | / | / ± / | / ± / | (C16:0) |
| / | / ± / | / ± / | / | / ± / | / ± / | (C18:0) |
| / | / ± / | / ± / | / | / ± / | / ± / | (C18:1, n-9) |
| / | / ± / | / ± / | / | / ± / | / ± / | (C18:2n-6) LA |
| / | / ± / | / ± / | / | / ± / | / ± / | (C20:0) |
| / | / ± / | / ± / | / | / ± / | / ± / | (C18:3, n-6) GLA |
| / | / ± / | / ± / | / | / ± / | / ± / | (C20-1) |
| / | / ± / | / ± / | / | / ± / | / ±21/1 | n-3) |
| / | / ± / | / ± / | / | / ± / | / ± / | (C18:3, |
| / | / ± / | / ± / | / | / ± / | / ± / | (C20:2, n-6) |
| / | / ± / | / ± / | / | / ± / | / ± / | (C22:0) |
| / | / ± / | / ± / | / | / ± / | / ± / | (C20:3, n-6) DGLA |
| / | / ± / | / ± / | / | / ± / | / ± / | (C20:3, n-3) |

| | / ± / | / ± / | / | / ± / | / ± / | (C20:4, n-6) AA |
|---|-------|-------|---|-------|-------|---------------------------------------|
| / | / ± / | / ± / | / | / ± / | / ± / | |
| / | / ± / | / ± / | / | / ± / | / ± / | (DDA, C22:2, n-6) (C20:5, n-3) EPA |
| / | / ± / | / ± / | / | / ± / | / ± / | (C24:1) |
| / | / ± / | / ± / | / | / ± / | / ± / | (C22:6, n-3) DHA |
| / | / ± / | / ± / | / | / ± / | / ± / | |
| / | / ± / | / ± / | / | / ± / | / ± / | |
| / | / ± / | / ± / | / | / ± / | / ± / | MUFA |
| / | / ± / | / ± / | / | / ± / | / ± / | PUFA |
| / | / ± / | / ± / | / | / ± / | / ± / | n-6 |
| / | / ± / | / ± / | / | / ± / | / ± / | n-3 |
| / | / ± / | / ± / | / | / ± / | / ± / | |
| / | / ± / | / ± / | / | / ± / | / ± / | AA |
| / | / ± / | / ± / | / | / ± / | / ± / | EPA DGLA |
| / | / ± / | / ± / | / | / ± / | / ± / | n3 n6 |

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t

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Mean±SE

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