



# Vitamin C

- Vitamin C

Slc23a1

-

1.

C(ascorbic acid)가  
post-translational modification  
hydroxylase

C가 (1, 2, 3).  
ascorbic-acid  
C transporter SVCT2 Slc23a1가  
가 (4), *Slc23a1*<sup>-/-</sup>  
C uptake 5%  
, *Slc23a1*<sup>-/-</sup>

2.

C

C  
*Slc23a1*<sup>-/-</sup>  
Slc23a1 C 가  
C  
, *Slc23a1*<sup>-/-</sup>

(free radical)  
C sodium-  
coupled vitamin C transporter SVCT1  
SVCT2(4) . SVCT1

, surfactant B  
*Slc23a1*<sup>-/-</sup>

, SVCT2 C  
SVCT2 ,

C  
가 4-hydroxyproline

.  
oxidative stress , oxi-  
가  
가

Slc23a1  
C(ascorbic acid)

.

가

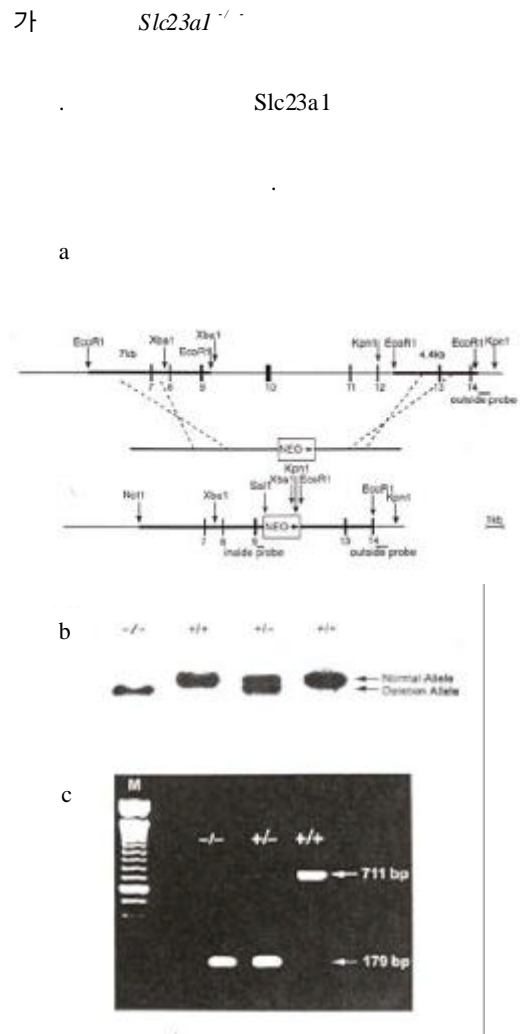
C , C  
 가 .  
 3. (SVCT2)

3.1 SVCT2-null

Sotiriou (5) (6)  
 C SVCT2 *Slc23a1*  
 exon 10-12 aminoglycoside  
 phosphotransferase gene ( $Neo^R$ )  
 frame-shift 가  
 ( la). 1 *Slc23a1*<sup>+/+</sup> × *Slc23a1*<sup>-/-</sup>  
 Southern-blot analysis Re-  
 verse-transcriptase (RT)-PCR  
 ( lb 1c).  
*Slc23a1*  
 , C 가 5%

3.2 (SVCT2)  
*Slc23a1*<sup>+/+</sup>, *Slc23a1*<sup>+/-</sup>  
*Slc23a1*<sup>-/-</sup>  
*Slc23a1*<sup>-/-</sup> ,  
*Slc23a1*<sup>+/+</sup> *Slc23a1*<sup>+/+</sup>

SVCT2-  
 null (*Slc23a1*<sup>-/-</sup>)  
 ,  
 ,  
 가 *Slc23a1*<sup>-/-</sup>  
 가  
 가  
*Slc23a1*  
 , *Slc23a1*<sup>+/+</sup> *Slc23a1*<sup>-/-</sup>



1. *Slc23a1* segment  
 (a) knockout arm  
 7-9 7 kb ,  
 arm 13-14 4.4 kb  
 532  
 가 10-12  
 (b) wild-type (+/+), *Slc23a1*<sup>+/-</sup>  
 (+/-) *Slc23a1*<sup>-/-</sup> (-/-)  
*KpnI* DNA suthern blot ana-  
 lysis wild-type  
 (c) a probe  
 wild-type, *Slc23a1*<sup>+/-</sup> *Slc23a1*<sup>-/-</sup>  
 RNA RT-PCR.  
 179 base pair; wild-type , 711 base  
 pair.

, *Slc23a1*<sup>-/-</sup> Slc23a1

surfactant 4. C

B C Fe<sup>2+</sup>

가 가 Collagen, car-

(7). *Slc23a1*<sup>-/-</sup> nitine, catecholamine peptide ami-

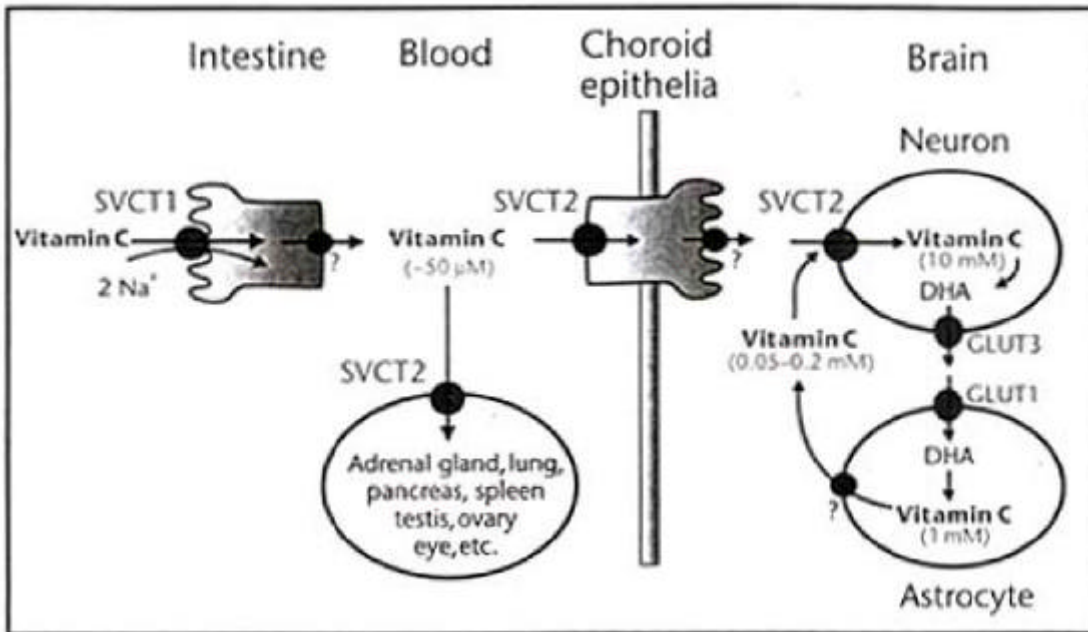
가 C dation, tyrosine

C proline hydroxylation

, Slc23a1

( , )

, Slc23a1 10-160 μM



2. C C SVCT1 SVCT2 Na<sup>+</sup>-coupled transporter (dehydro-ascorbate, DHA) glucose transporter (GLUT) Astrocyte (12, 13). C DHA C가 C Na<sup>+</sup>-coupled transport C

free radical , C  
DHA GLUT3  
가 GLUT1 astrocyte  
. astrocyte DHA C  
가 SVCT2  
C- 가 cycle  
C  
5. SVCT2 C  
C가  
5.1 C (14).  
C  
5.3 C  
C 가  
가  
2 C  
SVCT1  
(8, 9). SVCT2  
가 radical  
. choroid (15, 16).  
SVCT2가 C  
(4, 10). C  
6. C SVCT2  
Sotiriou (5) SVCT2-null  
C SVCT2 가  
SVCT2 dehydroascobate  
(DHA) glucose transporters(GLUT)  
가 (11), C  
glutamate  
. , GLUT glutamate C가  
(8, 12).  
5.2 C recycling  
C recycling oxidation  
astrocyte  
가 (13).  
C  
가 surfactant system  
가가 . SVCT2-null  
perfusion

- free radical  
 , collagen  
 C가  
 .  
 Sotiriou (5)  
 C  
 , SVCT2-null  
 SVCT2  
 가 .  
 가  
 knockout
- 7.
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