SEKVENSER

SSAATTBB

Bo Lundby-Jæger

2016

STATENS KUNSTFOND

DANISH ARTS FOUNDATION

<u>Glucose: S1, A1, T1, B1,</u>

Sequence 1:

- N-acetylgalactosamine, - Galactose, - N-acetylneuraminic acid,- Mannose, - Fucose

Sequence 2:

-Glycolisation,-Enzymatic process where sugars are added to proteins and lipids.-Clustered regularly interspaced short palindromic repeats.-

Zinc finger nucleases, glycosyltransferases, enzymes that build sugars.-Macromolecules with high density of sugar found in body fluids.

Sequence

-Type of protein, type of protein found on mycein…-more than two-hundred glycosyltransferases enzymes are found in man and these orchestrate the synthesis of enormous diversity in glycan structures on proteins and lipids.

Sequence 4:

-The Major allogenic difference and barrier for for blood transfusion and organ transplantation in man is the blood group ABO system, - the ABH antigens that cause immunological reactions if unmatched are simple sugar structures consisting of…
The main host cell for production of recombinant glycoprotein therapeutics,… such as antibodies, coagulation factors and enzymes for replacement therapy…

Sequence 5

-We have developed the simple cell strategy in which glycosylation is genetically simplified in Cells to enable efficient enrichment of defined glycoprotein's and characterization of glycoproteomes by…. Mass spectrometry
-Complex glycans represent the third language of life after DNA and proteins.

<u>Metabolism S2,A2,T2,B2</u>

Sequence 1:

-AMP-activated protein kinase regulates nicotinamide phosphoribosyl transferase expression in skeletal muscle.

Sequence 2:

-signaling in vitro is associated with robust incretin secretagogue action *ex vivo* and *in vivo*

Sequence 3:

-The gastrointestinal tract plays a major role in the regulation of postprandial glucose profiles.

Sequence 4:

-It is widely accepted that obesity and associated metabolic diseases….are intimately linked to diet

Sequence 5:

-Metabolites are not just fuel and building blocks, key metabolites are signaling molecules just like hormones and neurotransmitters

- Bo Lundby-Jæger 151016, Brønshøj

Lyrics by: Panum

Sekvenser

Voice

Music by: BLJ
Arranged by:

Soprano 1

Alto 1

Sekvens 1

mp N N, N, *mf* (m) *mf* a - ce - tyl - ga - lac - to - se - mine *p* N N

All is recitativo

Tenor 1

1.Sekvens

40 sk

Baritone 1

mf N -

Soprano 2

Alto 2

36 sk.

Tenor 2

Sekvens 1

Baritone 2

p A - M - P ac - ti - va - ted *sfzp* pro - te - in *p* ki na - se - *mf* re - gu - lates *p* ni - co - ti - na - mide *p* Phos -

Sekvens 1

16

45 sk

S 1

p mp p mp ♩= 60

N , N , N , a-ce-tyl-ga-lac-to-sa - mine,

A 1

mf pp mp p

a - ce - tyl - glu - co - sa-mine (m) , (m) , Ga - lac - to - se, (m) (m) ,

T 1

1.Sekvens

1,16 mn

mp

N,

B 1

mp p mf p

(m) (m) N, (m)-, N-(m) - , a-ce-tyl-ga-lac-to-sa - mine (m)-, (m) - , Glu-co - sa-mine , sa-mine,

S 2

A 2

Sekvens 1

1 mn

mp

(m) ,

T 2

Sekvens 1

mp p mf p mf f mp

A - M_P (m) , (m) , (m) , A - M - P ac - tited va pro - te - in (m) , ki - na - tes re - gre - lates gu - lates ni - co - ta-

B 2

Sekvens 2

f mp X3 1 mn mp

phor i-bo-syl trans-fe-ra-se ex-pres - sion in ske - le - tal mu - scle ~ 5.20 Sig-na-ling

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S 1 — *mp* — *mf* ~ 6 mn — *p* — *mf* — *p*

(m) - , (m) - - - - - a-ce-tyl-glu-ko-sa - mine, (m) - , Ga - lac - to - se N - (m) (m) -

A 1 — *mf* — *p* — *pp* — X3

a-ce - tyl - neu - ra-mi-nic, a - cid, Ma - , ma - no - se, Fu - co - se (m) , (m) ,

T 1 — *mf* — *mp* — *f* — *p* — *mf*

N _____ , N ___ , a - ce-tyl - ga - lac - to - sa - mine, (m) - , (m) , a - ce - tyl - glu - co - sa - mine,

B 1 — *mp* — *pp* — *mf* — *pp* — *p*

Ga-lac-to - se Ga-lac-to - se a - ce - tyl - neu - ra - mi-nic - a-cid a-cid Fu-co - se, (m) - ,

1 1/2 mn **Sekvens 1**

S 2 — *mp* — *mf*

(m) _____ , (m) _____

A 2 — *p* — *mf* — *mp* — *mp* — *p*

(m) _____ , _____ A-M - P ac-ti - va - ted pro - te - in. ki-na - ses re-gu-lates ni-co-ti-na mide _____ Phospho - ri - bo - syl, ri - bo - syl,

T 2 — *p* — *pp* — *mp* — X3 — 3 mn

mide phos pho - ri - bo - syl trans-re - fa - se trans-re - fa - se ex - pres-sion in ske-le-tal mu - scle. ~ 7.40

B 2 — *mf* — *p* — *f* — *mp* — *p* — *pp* — *sfz* — *p* — *sfz*

in vi-tro is as-so - cia - ted with ro-bust in - cre-tin as-so-cia-ted with ro-bust in - cre - tin se-cre-ta-gogue

S 1

A 1

T 1

B 1

S 2

A 2

T 2

B 2

Sekvens 2

X4

1 minute break !

10 sek.

Sekvens 2

3X

1.30 mn

3 X

10 sekunder

Sekvens 2

Sekvens 2

X2

3 mn

a - ce - tyl neu - ra mi nic - a - cid. Ma - (nn) no - se (m) - , (m) - , Gly - co, Gly - co - sy - la - tion,

a - ce - tyl - ga - lac - to - se-mine N N, (m) (m) Zinc fin - ger nu - cle-a - ses

(m) , (m) , a - ce - tyl neu - ra - mi - nic a - cid (m) , (m) - ,

(m) (m) Gly - co, Gly - co sy -

, A - M - P ac - ti - va - ted, ac - ti - va - ted pro - te - in ki - na - tes re - gu - lates (m) , (m) ni - co - ti - na - mide, phos-pho - ri - bo - syl trans - fe - ra -

(m) , trans - fe - ra - se trans - fe - ra - se (m) , (m) , Ex - pres - sion in ske - le - tal musc - le

Sig - na - ling in vi - tro in vi - tro is a - so - ci - a - ted - with bust in - cre -

ac - tion ex vi - vo and in vi - vo

50

S 1 — *mf* *pp* *mp* *pp* *f*

en - zy - ma - tic pro - cess su-gars are ad-ded to pro - te - ins (m) - , and Li - pids, (m) - , Clu - ste - red re - gu - lar - ly in - ter - spaced short

A 1 — *f* *p* *pp* *mf* *p* *mp*

Zinc fin - ger, nu - cle - a - ses Gly - cosyl - trans-dro - la - ses - En - zymes that build su - gars. Ma - cro - mo - le - cules -

Sekvens 2

T 1 — *mp* *mp* *mf* *mp*

Gly - co Gly - co - sy - la - tion , (m), (m) , and Li - - - - pids,

B 1 — *mf* *p* *sfz* *p* *pp* *mp*

la - tion, Li, li, Li-pids, En - zy - ma - tic pro - cess, Where su-gars are ad - ded to pro - te - in

S 2 — *p* *mp* *f* *mp*

1 1/2 mn

se (m) , ex pre - sion in , in , ske-le-tal mu - scle.

~ 5.15

Sekvens 2

2 mn

A 2 — *mp* *mp* *f* *f* *mp* *mf*

(m) , (m) , Sig - na - ling in vi - tro sig - na - ling is as - so - cia - ted with ro - bust

T 2 — *p* *pp*

X2

- - - (cre) - - - ta - gogue ac - tion Ex vi - vo, in vi - vo, Ex vi - vo, in vi - vo,

Sekvens 3

B 2 — *mp* *pp* *mp* *mp*

~ 10.40

(m) , the ga - stro - in te - sti - nal tract plays plays a ma - jor role role

60

S 1

Pa - lin - dro - mic re - peats. Pa - lin - dro - mics re peats, Gly - co - sy - la - tion, (m) - , Clu - ste - red re - gu - lar - ly,

Sekvens 3

A 1

- with high den - si - ty, of su - gar found in bo - dy flu - ids

X4

30 sek

~ 9.30

More than

T 1

(m) , (m) , En - zy - ma - tic pro - cess

2X

2,45 mn

~ 11.30

B 1

cluste red re - gu - lar - ly in - ter - spaced short pa - lin - dro - mic re - peats - - - - (m) , (m) (m)

Sekvens 2

S 2

(m) , sig - na - ling in Vi - tro is (m) , as - so - ci - a - ted with ro - bust in - cre - tin

Wispering with air

A 2

in - cre - tin, ro - bust in - cre - tin se - cre - ta - gogue (m) ac - tion ex vi - vo and in vi - vo ac - tion ex vi - vo and in vi - vo ac - tion ex vi - vo and in vi - vo

30 sk

Sekvens 3

T 2

(m) , (m) , (m) , teh ga - stro in - te - sti -

B 2

in the re - gu - la - tion of (m) , of post post

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S 1 — (m) - , (m) , (m) , (m) , (m) , (m) , (m) ,

A 1 — Sekvens 3 — two - hun-dre-de gly - co - sul - trans-fe-ra - ses en - zymes are - found in man and these or-che-strate the syn - the - sis of e - nor - mous di-

T 1 — Type of pro - te - in Type of (m) , Mu cins, Type - of pro - te - in, found on mu - cins, zinc fin -

Sekvens 3

3X — 30 sk — ~ 9.30

B 1 — (m) Type of, Type of, type of pro te - in more than two-hundred gly - co - sul - trans-fe-ra - ses

S 2 — (m) se - cre - ta-gogue (m) (m) , se-cre-ta-gogue ac - tion (m) , ex Vi - vo in Vi - vo, (m) ,

Sekvens 3

ordinario — X4 — 2 mn — ~ 11.20

A 2 — (m) , (m) , (m) , The ga - stro in - te - sti - nal tract

T 2 — nal tract plays a ma-jor role in the re-gu - la-tion of post pan - dri-al glu - cose pro-files

1 1/2 mn — ~ 13.00

Sekvens 4

B 2 — pan - dri - al pan - dri - al glu - co - se pro - files. — 30 sk — ~ 12.30 It is wide -

Sekvens 3

1mn og 20 sek

~ 10.40 *accel.*

Sekvens

1 1/2 mn

~ 12.30

20 sk

Sekvens 3

~ 9.20

1 mn

~ 13.30

Sekvens 4

S 1 (m) , Type of Pro - te - in, Type of, Type of pro-te-in, Mu - cin type Mu - cin

A 1 ver - si-ty in gly-can stru-tures on pro - te - ins and li - pids. (m) (m) ,

T 1 ger nu - cle-a-ses, Gly - co syl hy-dro - la-ses (m) , en - zymes that build su gars, ma-cro-mo - le - cules with

B 1 en - symes are found in Man! (m) , en - zymes that build su - gars, ma-cro - mo, ma-cro mo, mo-le-cules with high den si - ty of flu-id found in bo - dy flu-ids.

S 2 (m) , The Ga - stro inte - sti-nal (m) , tract plays a ma - jor role in the re - gu - la - tion

A 2 (m) , (m) , plays a ma jor role in the re-gu-la-tion of post - pran-di-al glu - cose pro - file.

T 2 it is wi - dely (m) , (m) wi - dely ac - cep-ted that o - be - si - ty and (m) , (m) , and as-so - cia-ted me - ta - bol-lic

B 2 ly ac - cep - ted that o - be - si - ty and as-so - cia-ted me - ta - bo-lic di-sea-ses

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S 1 — *p* *mp* *mf* *mp*
type, Type of pro - te - in, found on Mu - cins, type of pro - te - in, ty - - - pe of , pro - te - in,

A 1 — *p* *mp* *f* *p*
(m) , (m) , the main host cell for pro - duc - tion of re com - bi - nant gly - co - pro - tein the - ra - peu - tics, (m) ,

T 1 — 40 sek ~ 13.40 **Sekvens 4** *p*
high den - si - ty of flu - id found in bo - dy flu - ids, (m) , (m) ,

B 1 — 2,30 mn ~ 13.00 **Sekvens 4** *mp* *pp* *mp*
(m) (m) (m)

S 2 — *p* *mf* *f* *p* *pp*
of , of , post pran - di - al glu - cose pro files , (m) (m)

A 2 — **Sekvens 4** *mf* *p* *pp* *mp*
It is wide - ly ac - cepted that that o - be - si - ty and (m) , (m) , and as - so - ci - a - ted me - ta - bo - lic di sea ses,

T 2 — *mp* *p* *pp* X3 2 mn
di - sea - ses (m) , (m) , (m) , (m) ,

Sekvens 5

B 2 — *pp* X4 10 sk *mp*
are in - ti - mate - ly linked to di - et. ~ 18.30 Me - ta - - - bo - lites are not just

Sekvens 4

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1mn 10 sek

~ 13.00

S 1 — ty - - - - - pe, The ma-jor al - lo - ge - nic dif - fe-rence and bar-ri-er for

A 1 — (m) , such as an-ti-bo-dies co - a - gu - la tion fac-tors and and en - zymes for re - place - ment the ra py

T 1 — the ma - jor al-lo-gen-nic dif - fe-rence and bar - ri - er for Blood trans-fu - sion, (m) , (m) , and

B 1 — The ma - jor al - lo - ge - nic dif - fe - rence and bar-ri-er for blood trans-fu-sion (m) , and or - gan trans-plan -

3 1/2 mn

~ 14 mn

S 2 — (m) , (m) , (m) (m) ,

A 2 — (m) , (m) , (m) , It is wide-ly ac - cepted that that o - be - si - ty

Sekvens 5

T 2 — (m) , (m) , me - ta - bo - lites are not just fuel and buil - ding - blocks key me - ta - bo-lites are - ,

B 2 — fuel (m) and buil - ding-blocks key me - ta - bo - lites are mo - le - cules mo - - - - le - cules just like

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S 1 — pp p mp pp mp

blood trans-fu-sion and or-gan trans-plan-ta-tions in man, is the blood group A-B-O sy-stem, the A-B-H an-ti-gens that cau-ses,

Sekvens 5

2 mn

A 1 — p 3 X mp pp mf

(m) , (m) ~ 18.30 (m) , (m) , Com-plex Gly-

T 1 — p mf p mf

or-gan trans-plan-ta-tion, (m) (m) , (m) , is the blood group A-B-O, sy-stem. The A-B-H

Sekvens 5

B 1 — p 1 1/2 mn mp

ta-tion is (m) (m) , (m) , (m), (m), ~ 19.00 (m)

Sekvens 4

S 2 — p mp p

(m) (m) , it is wide-ly ac-cep-ted that that o-be-si-ty , (m) ,

A 2 — mp pp mp 4 mn

and (m) , (m) , and as-so-ci-a-ted me-ta-bo-lic di sea ses..., ~ 19.30

T 2 — mf p f p X2

sig-na-ling mo-le-cules just like hor-mones and neu-ro-trans-mit-tors.

B 2 — mf X2

hor-mones and neu-trans-mit-ters.

Sekvens 5

125

S 1

mf *p* *mp* X 3 2,1/2 mn ~ 19.00 *mp* *p*

Im - mu - nu - lo - gi - cal re - ac - tions if un - matched are sim - ple su - gar struc - tures con - sis - ting of we have de - ve - loped the Sim - ple Cell stra - te - gy

A 1

mf *mp* *f* *p* *mf* *p* *p* *ppp*

cans, re - pre - sent the third language of life af - ter D - N - A and pro - te - ins. Su gar, su - gar, Su gar, su - gar,

T 1

2X 3,30 mn ~ 19.40 **Sekvens 5** *f* *mp* *p* *f* *mp*

a - ti - gens that cau - ses, we have de - ve - loped sim - ple stra - te - gy, Cell stra - te - gy Siom - ple Cell stra - te - gy

B 1

p *mp* *p* *f* *mp*

(m) (m) Com - plex gly - cans re - pre - sent the third lan - guage

S 2

mf *p* *mf* *p*

Sekvens 5

(m) , and as - so - ci - a - ted me - ta bo - lic di - sea ses (m) , are in - ti - ma - tely linked to di - et. (m) ,

A 2

p *pp* *mp* *p* *pp*

(m) , (m) , me - ta - bo - lites are not just fuel and buil - ding - blocks, key me - ta - bo - lites (m)

T 2

B 2

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S 1 — *mf* *mp* *mp* *pp* *mp* *mp*

in which gly - co-sy - la-tion is ge - ne-ti-cal-ly sim - pli-fyed in Ce - lls, to en - a-ble ef - fi-cient en - rich - ment of de-fined gly - co - pro-te-ins and

A 1

T 1 — *mf* *mp* *p* *pp* *mf* *p* *mp*

Com-plex Gly cans re-pre-sents the third lan-guage (m) , (m) , lan-guage of li - - - - fe, (m) , (m) , af-ter D - N -

B 1 — *p* *f* *p* *mf* *f*

of life af - ter D-N-A , (m) , (m) , and pro-te - ins, Su-gar - gar,

S 2 — *pp* X4 1 1/2 mn **Sekvens 5** *mf* ~ 20 mn *mp*

(m) , Me-ta - bo-lites are not just fuel and buil-ding blocks, Key me-ta-bo-lites are

A 2 — *mp* *p* *pp* *mf* *p*

, are sig-na-ling mo - le - cules just like hor - mones and neu-trans - mit-tors (m) (m) , (m) ,

T 2

B 2

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S 1

cha - rac - te - ri - za - tion of gly - co - pro-te - omes by, by, Mass-spec - tro - me - try

p *pp* X2

A 1

T 1

A Su - gar Su - gar Su - gar Su - gar,

mf

B 1

S 2

sig - na - ling mo - le - cules just like hor - mones and neu ro trans - mit - ters (m) , (m) ,

mf *mp* *p* *f* *p*

A 2

(m) , (m) ,

pp

T 2

B 2