Scientific CDG Symposium 2021

on

Congenital Disorders of Glycosylation
and related disorders

VIRTUAL Symposium
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BRUNEEL Arnaud

Fast diagnosis of SLC37A4-CDG, a congenital disorder of glycosylation with dramatically altered hemostasis blood tests but normal coagulation

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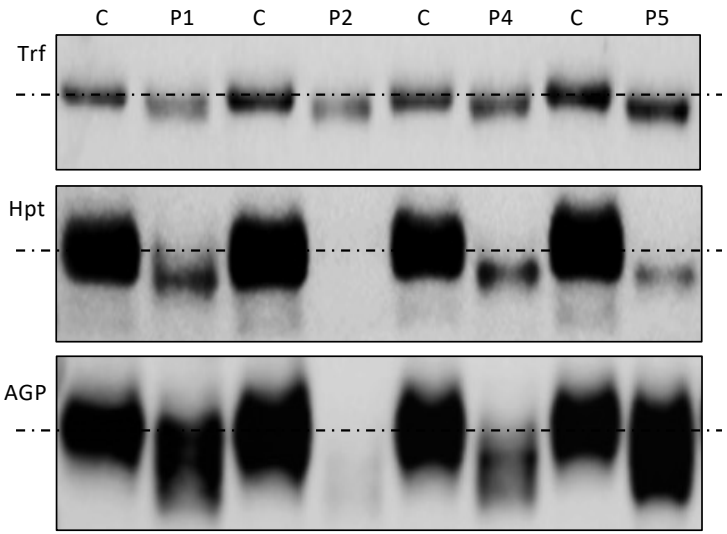
Fast diagnosis of SLC37A4-CDG

SLC37A4-CDG: a recently described dominant CDG

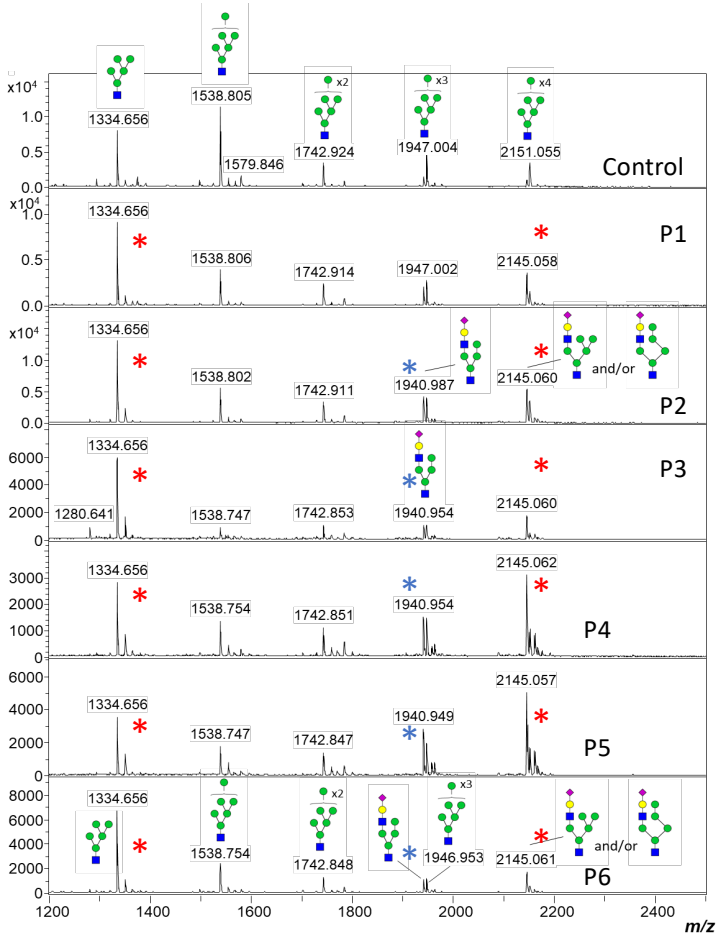
- Heterozygous SLC37A4 deficiency: a dominant CDG
- 9 reported affected individuals; c.1267C>T (p.R423)
- partial mislocalization of the ER Glc-6P transporter ➔ defects on liver Golgi homeostasis, glycosylation and coagulation factors levels (F2, F11, AT…)
- most patients safely benefited from more or less invasive surgery. Under FFP or not…
- Probably underdiagnosed CDG

Fast diagnosis of SLC37A4-CDG

Western blot of glycoproteins and MALDI-TOF of EndoH-released N-glycans



MW decreases for all tested glycoproteins



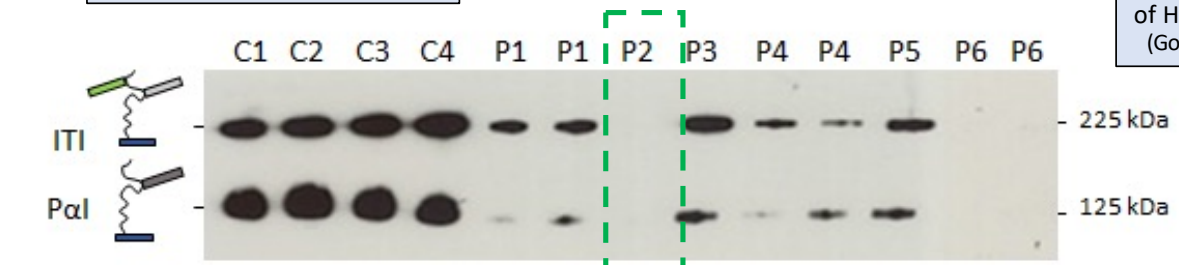
m/z 1334.6
m/z 2145.0
m/z 1940.9

Fast diagnosis of SLC37A4-CDG

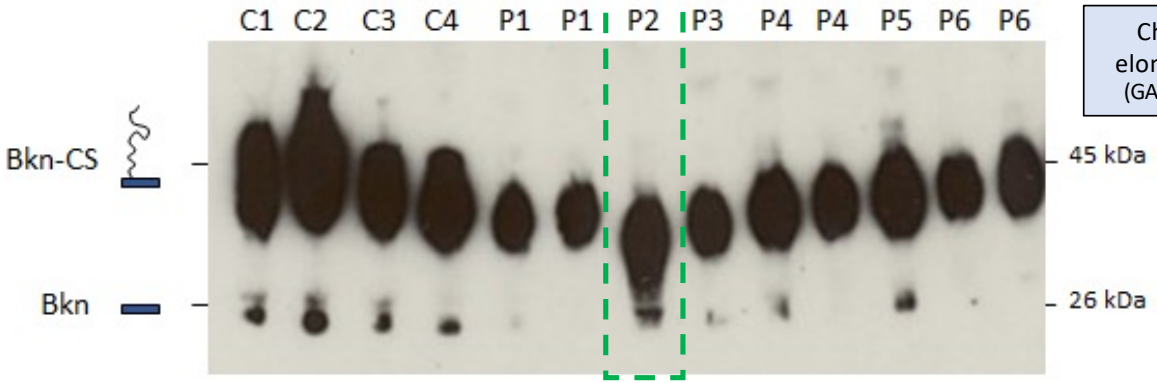
Western blot of bikunin isoforms

Bikunin:
a serum 'protein-GAG-protein'
(PGP)

Overall defect
of HC ester linkages
(Golgi pH disruption)



Chondroitin sulfate
elongation defect in P2
(GAG biosynthesis defect)



Fast diagnosis of SLC37A4-CDG

Conclusion

Western blot of N-glycoproteins, MALDI-TOF MS of Endo H-released N-glycans and western blot of bikunin isoforms highlighted new biochemical features of SLC37A4-CDG that provide characteristic patterns, with possible diagnostic implications.

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