Supplementary material 1: List of all adult-onset neurometabolic diseases. In bold, those with a disease-modifying therapy currently available in clinical practice. Adapted from: *Hollak CE, Lachmann R, editors. Inherited metabolic disease in adults: A clinical guide. Oxford University Press; 2016.*

DISORDERS OF CARBOHYDRATE METABOLISM

Glycogen storage disorders 0-XIII, including **Pompe**, Cori/Forbes, Andersen or Adult polyglucosan body disease and McArdle disease

Galactosemia

GLUT1 deficiency

DISORDERS OF MITOCHONDRIAL ENERGY METABOLISM

Pyruvate dehydrogenase complex deficiency

Disorders of mitochondrial energy metabolism: Mitochondrial encephalomyopathy with lactic acidosis and stroke-like episodes (MELAS), Myoclonic epilepsy with ragged-red fibers (MERRF), Neurogenic weakness with ataxia and retinits pigmentosa (NARP), Leigh syndrome (subacute necrotizing encephalomyelopathy), **Leber hereditary optic neuropathy (LHON)**, Progressive external ophtalmoplegia (PEO), Kearns-Sayre syndrome (KSS), Sensory ataxic neuropathy, dysarthria and ophtalmoparesis (SANDO), Myoclonic epilepsy, myopathy, sensory ataxia (MEMSA), Mitochondrial neurogastrointestinal encephalomyopathy (MNGIE)

Fatty acid oxidation: Carnitine deficiency carnitine palmitoyltransferase 1A (CPT1A) deficiency, carnitine-acylcarnitine translocase (CACT) deficiency, carnitine palmitoyltransferase 2 (CPT2) deficiency, Very long-chain acyl-CoA dehydrogenase (VLCAD) deficiency, **Long-chain 3-hydroxyacyl-CoA dehydrogenase (LCHAD) deficiency, Mitochondrial trifunctional protein (MTP) deficiency**, **Medium-chain acyl CoA dehydrogenase (MCAD) deficiency**, Short-chain enoyl-CoA dehydrogenase (SCAD) deficiency, 3-hydroxyacyl-CoA dehydrogenase (HADH) deficiency

Electron transfer defects: **Multiple acyl-CoA dehydrogenase (MADD) deficiency**

Riboflavin metabolism defects: **Brown-Vialetto-Van Laere (BVVL) syndrome**, FAD synthetase deficiency, MFT deficiency 81

Disorders of ketogenesis and ketolysis: 3-hydroxyl-3-methylglutaryl-CoA (HMG-CoA) synthase deficiency, HMG-CoA lyase deficiency

Disorders of creatine metabolism: AGAT deficiency, GAMT deficiency, CrT defect

Coenzyme Q10 deficiency

DISORDERS OF PROTEIN METABOLISM

Phenylketonuria

Maple syrup urine disease, Proionic acidemia, Methlymalonic acidemia and Isovaleric acidemia

Urea cycle disorders, Hyperornithinemia-hyperammonemia-homocitrullinuria syndrome

Citrin deficiency

Cystathionine beta-synthase deficiency or Homocystinuria

Cerebral organic acidurias: Glutaric aciduria type I and 2-hydrohyglutatic acidurias

Lysinuric protein intolerance and Hartnup disease

DISORDERS OF VITAMIN METABOLISM
Biotinidase deficiency
Disorders of cobalamin: CblC and others
Folate metabolism: Methylenetetrahydrofolate reductase (MTHFR) deficiency
Disorders of thiamin metabolism: Biotin-thiamin responsive basal ganglia disease

NEUROTRASMITTERS
Succinic semialdehyde dehydrogenase deficiency
Adult-onset monoamine disorders: **Autosomal dominant GTP cyclohydrolase deficiency**
Brain serotonin deficiency

DYSLIPIDEMIAS
Tangier disease
Abetalipoproteinemia

BILE ACID SYNTHESIS DEFECTS
Cerebrotendinous xanthomatosis
Spastic paraplegia (SPG) type 5

DISORDERS OF PURINE METABOLISM
Lesch-Nyhan disease and variants

PORPHYRIAS
Acute intermittent porphyria

MINERAL AND METAL METABOLISM DISORDERS
Disorders of copper and iron metabolism: Neuroferritinopathy, **Wilson disease, Acerulopasminemia**
Disorders of manganese metabolism: **SLC30A10 deficiency**

LYOSOMAL STORAGE DISORDERS
Fabry disease
Gaucher disease type III
GM1-gangliosidosis type II and III
GM2-gangliosidosis (Tay-Sachs and Sandhoff disease)
Krabbe disease
Metachromatic leukodystrophy (ARSA and Saposin-C deficiency)
Niemann type C
Pompe disease
Neuronal Ceroid Lipofuscinosis (mainly CLN2, CLN3, CLN4, CLN5, CLN6, CLN7, CLN11, CLN13).
Sialidosis or Mucolipidosis type 1

PEROXISOMAL DISORDERS

X-linked adrenoleukodystrophy and adrenomyeloneuropathy
Refsum disease
2-methylacyl-CoA racemase (AMACR) deficiency

CONGENITAL DISORDERS OF GLYCOSYLATION (CDG)

Only some genes like *DPGAT1* congenital myasthenia