|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Patient ID** | **Growth and related** | **Head circumference, forehead, chin and ears** | **Fontanels** | **Other minor anomalies** | **Neuroevelopment and behavior** | **Other** |
| DECIPHER 402414 |  |  |  |  | ID | Umbilical hernia, Hypermetropia |
| DECIPHER 297860 |  |  |  | Enlarged nares, Widely spaced teeth, Bulbous tips of toes | Muscular hypotonia, ID, Global DD, Motor DD | Cataracts, Colon cancer, Spontaneous pneumothorax |
| DECIPHER 306151 |  |  |  |  |  | None listed |
| nssv577564 |  |  |  |  |  | Abnormal heart morphology, Multicystic kidney dysplasia |
| DECIPHER 295733 | Mild postanatal growth retardation, Mild short stature, Slender build |  |  | Generalized joint laxity | Moderate expressive language DD, Mild receptive language DD, Gross motor DD |  |
| DECIPHER 285735 |  |  |  |  | Moderate ID |  |
| DECIPHER 396469 |  | Macrocepahly, Low-set, posteriorly rotated ears |  | High anterior hairline Hypertelorism, Long and upslanted palpebral fissures, Synophrys, Talipes equinovarus | Muscular hypotonia, Spasticity, ID, Speech and language DD, Autistic behavior, EEG abnormality | Cataracts, Iris coloboma |
| nssv577565 | Failure to thrive, IUGR, Short stature |  |  |  | Global DD |  |
| **DECIPHER414204 (Proband)** | **Postnatal growth retardation, feeding difficulties,** | **Relative macrocephaly, Broad, high and prominent forehead, Micrognathia, Low-set and short ears, Prominent antihelix** | **Wide anterior fontanel** | **Wide nasal bridge, Delayed eruption of primary teeth, High palate, Single transverse palmar crease, 4-5 toe syndactyly** | **Global DD, sleep disturbance, ventriculomegaly** | **Weak cry, Cafe-au-lait spot** |
| DECIPHER 395155 | Proportionate short stature, Feeding difficulties in infancy | Frontal bossing | Delayed closure of the anterior fontanel, Wide cranial sutures | Hypertelorism, Upslanted palpebral fissures, Wide nasal bridge, Wide intermamillary distance, Narrow chest | ID, EEG abnormality |  |
| DECIPHER 395609 |  | Micrognathia, Sloping forehead, Abnormality of the pinna, Low-set ears | Delayed closure of the anterior fontanel | Hypertelorism, Short and downslanted palpebral fissures, Wide nasal base, High and narrow palate, Natal tooth, Long philtrum, Wide intermamillary distance, Camptodactyly of finger, Short foot, Small hand, Overlapping toe, Broad hallux | Muscular hypertonia, ID |  |
| DECIPHER 396509 |  | Broad forehead, Frontal bossing |  | High anterior hairline, Thick eyebrow, Prominent nose, Wide mouth | ID | Iris coloboma,, Cryptorchidism, Long penis |
| nssv576729 |  |  |  |  | Global DD |  |
| DECIPHER 395170 | Proportionate short stature | Microcephaly, Flat occiput, Broad forehead, Frontal bossing |  | High anterior hairline, Epicanthus, Broad hallux, Supernumery nipple | Muscular hypotonia, ID | Polyhidramnios |
| DECIPHER 288191 |  |  |  |  |  | Neonatal hypoglycaemia |
| DECIPHER 395094 | Proportionate short stature | Microcephaly, Frontal bossing, Low-set ears, Microtia |  | Upslanted and almond shaped palpebral fissures, Broad nasal tip, Depressed nasal bridge, Ulnar deviation of the hand | Muscular hypotonia, ID, Emotional lability | Lacrimal duct aplasia, Aortic stenosis,  |
| DECIPHER 395079 | Proportionate short stature, Delayed skeletal maturation | Microcephaly, Frontal bossing, Low-set and posteriorly rotated ears | Delayed closure of anterior fontanel, Wide cranial sutures | High anterior hairline, Short neck, Hypertelorism, Epicanthus, Short, bulbous nose, High palate, Single transverse palmar crease, Wide intermamillary dist, Broad hallux | Muscular hypotonia, ID | Atopic dermatitis, Recurrent infections |
| DECIPHER 393303 | SGA, Short stature, Rhizomelic arm and leg shortening | Micrognathia, Prominent metopic ridge. Abnormality of the pinna, Low-set ears | Delayed closure of anterior fontanel, Wide cranial sutures | High anterior hairline, Short neck, Short palpebral fissures, Short nose, Prominent nasal bridge, Anteverted nares, Deep and short philtrum, Narrow chest, Wide intermamillary distance, Small hand, Short foot, Broad hallux | Muscular hypotonia, Hydrocephalus, ID | Hearing impairment, Ectopic anus, Renal agenesis, Renal hypoplasia |
| DECIPHER 393344 | Proportionate short stature | Microcephaly, Micrognathia, Malar flattening, Prominent metopic ridge, Abnormality of the pinna, Low-set ears | Delayed closure of anterior fontanelle, Wide cranial sutures | High anterior hairline, Short neck, Hypertelorism, Short nose, Anteverted nares, Narrow mouth, Cleft palate, Narrow chest, Single transverse palmar crease, Short phalanx of finger, Aplasia of the phalanges of the hand, Overlapping fingers, Hammertoe, Overlapping toe, Broad hallux | Muscular hypotonia, ID | Preaxial hand polydactyly, Knee flexion contracture, Skin dimple, AV canal defect, Ectopic anus, Scrotal hypoplasia |
| DECIPHER 394950 |  | Micrognathia, Macrotia |  | Short neck, Hypertelorism, Downslanted palpebral fissures, Short, bulbous nose, Short philtrum, Wide mouth, Camptodactyly of finger, Small nail, Single transverse palmar crease, Overlapping toes |  | PDA, Aortic stenosis, AV canal defect, Polysplenia, Hydronephrosis, Cryptorchidism, Abnormality of the upper respiratory tract |

**Supplementary Table 3. Phenotypic characterization of the index patient and overlapping cases from public databases.**
Abbreviations: Mb: megabase; VUS: variant of unknown significance; LP: likely pathogenic; P: pathogenic; CNV: copy number variant; DD: developmental delay; ID: intellectual disability; AV: atrioventricular