#### inv(16)(p12.2)

- inversion on Chr16: 21502978(p12.2) 22436123(p12.2)
- all genes near breakpoints: ['SMG1P1', 'MIR6511A4', 'NOMO2', 'MIR3670-1', 'PKD1P4-NPIPA8', 'NPIPA8', 'METTL9', 'MIR6770-1', 'MIR3179-1', 'MIR3179-2', 'MIR3670-4', 'LOC100190986', 'MIR3179-4', 'MIR3180-3', 'MIR3670-2', 'SLC7A5P2', 'MIR3180-2', 'PKD1P5-LOC105376752', 'MIR3670-3', 'POLR3E', 'OTOAP1', 'MIR3179-3', 'ABCC6P1', 'MIR6511A1', 'MFSD13B', 'LOC100288162', 'NPIPA7', 'MIR6511A3', 'NPIPB3', 'MIR6770-2', 'MIR3180-1', 'MIR6770-3', 'MIR3680-1', 'RRN3P3', 'OTOA', 'LOC101927814', 'CRYM-AS1', 'MIR3680-2', 'SMG1P3', 'NPIPB5', 'CRYM', 'EEF2K', 'LOC440346', 'MIR6511A2', 'CDR2', 'IGSF6', 'SNX29P1']
- genes near breakpoints documented in DDG2P: None

## del(2)(p22.1)

- deletion on Chr2: 39347410(p22.1) 39620211(p22.1)
- all genes near breakpoints: ['TMEM178A', 'CDKL4', 'THUMPD2', 'MAP4K3', 'FAM110C', 'SH3YL1', 'MAP4K3-DT']
- genes near breakpoints documented in DDG2P: None
- all genes with -1 CN: ['MAP4K3', 'MAP4K3-DT']
- genes with -1 CN documented in DDG2P: None

#### del(9)(p12p11.2)

- deletion on Chr9: 39808807(p12) 41293385(p11.2)
- all genes near breakpoints: ['CBWD5', 'CBWD3', 'LOC102724238', 'ANKRD18A', 'FGF7P3', 'LOC554249', 'MIR4477A', 'LOC440896', 'LOC107984035', 'GLIDR', 'CBWD6', 'MIR4477B', 'FAM201A', 'FOXD4L6']
- genes near breakpoints documented in DDG2P: None
- all genes with -1 CN: ['GLIDR', 'FGF7P3', 'LOC102724238', 'LOC554249', 'LOC105379252', 'FAM95B1', 'GXYLT1P3', 'AQP7P3', 'LOC105379443', 'LOC101929583', 'LOC102724580', 'MIR1299', 'FRG1HP', 'PGM5P2', 'LOC440896', 'FOXD4L6', 'CBWD3', 'CBWD6', 'CBWD5', 'MIR4477B', 'MIR4477A']
- genes with -1 CN documented in DDG2P: None

### ins(9)(p12p11.2p13.1)

- insertion of Chr9: 41293385(p11.2) 38792299(p13.1) into Chr9: 39808807
- all genes near breakpoints: ['CBWD5', 'CBWD3', 'LOC102724238', 'ANKRD18A', 'FGF7P3', 'LOC554249', 'MIR4477A', 'CBWD6', 'LOC107984035', 'GLIDR', 'LOC440896', 'MIR4477B', 'FAM201A', 'FOXD4L6']
- genes near breakpoints documented in DDG2P: None

- all genes with +1 CN: []
- genes with +1 CN documented in DDG2P: None

# ins(12)(p13.33p11.21p11.21)

- insertion of Chr12: 31134238(p11.21) 31244387(p11.21) into Chr12: 0
- $all \ genes \ near \ breakpoints: \ ['LINC00987', 'DDX12P', 'LOC728715', 'LOC101928030', 'MIR1244-2', 'LOC1019280', 'MIR1240', 'MIR140', 'M$

'DENND5B', 'PZP', 'DDX11-AS1', 'LOC574538', 'IQSEC3', 'DDX11', 'A2MP1', 'KLRB1', 'FLJ13224',

'MIR1244-1', 'OVOS2', 'LINC02387', 'MIR1244-3', 'LOC408186', 'SLC6A12', 'TSPAN11', 'LOC642846',

'WASH8P', 'SINHCAF', 'FAM138D', 'MIR1244-4', 'LINC02367']

- genes near breakpoints documented in DDG2P:

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- all genes with +1 CN: ['OVOS2']
- genes with +1 CN documented in DDG2P: None