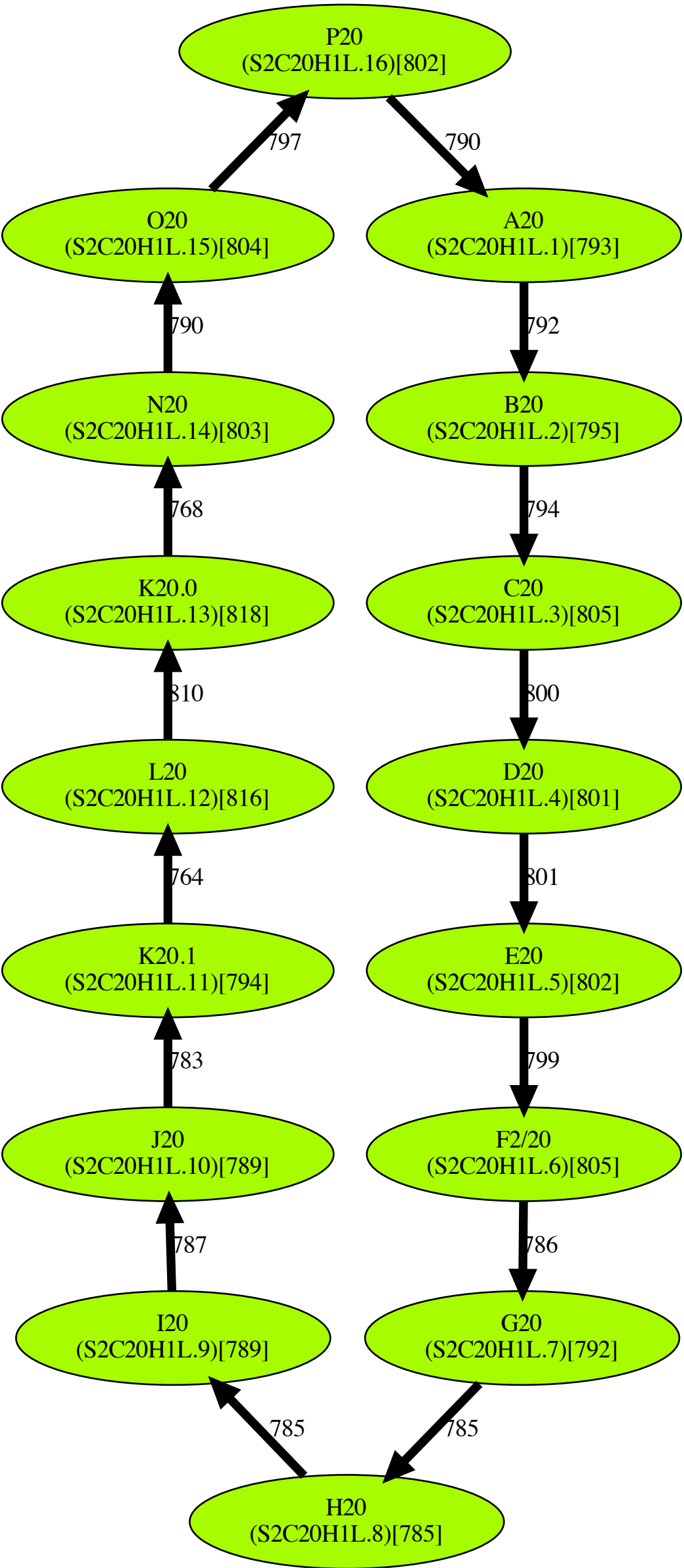
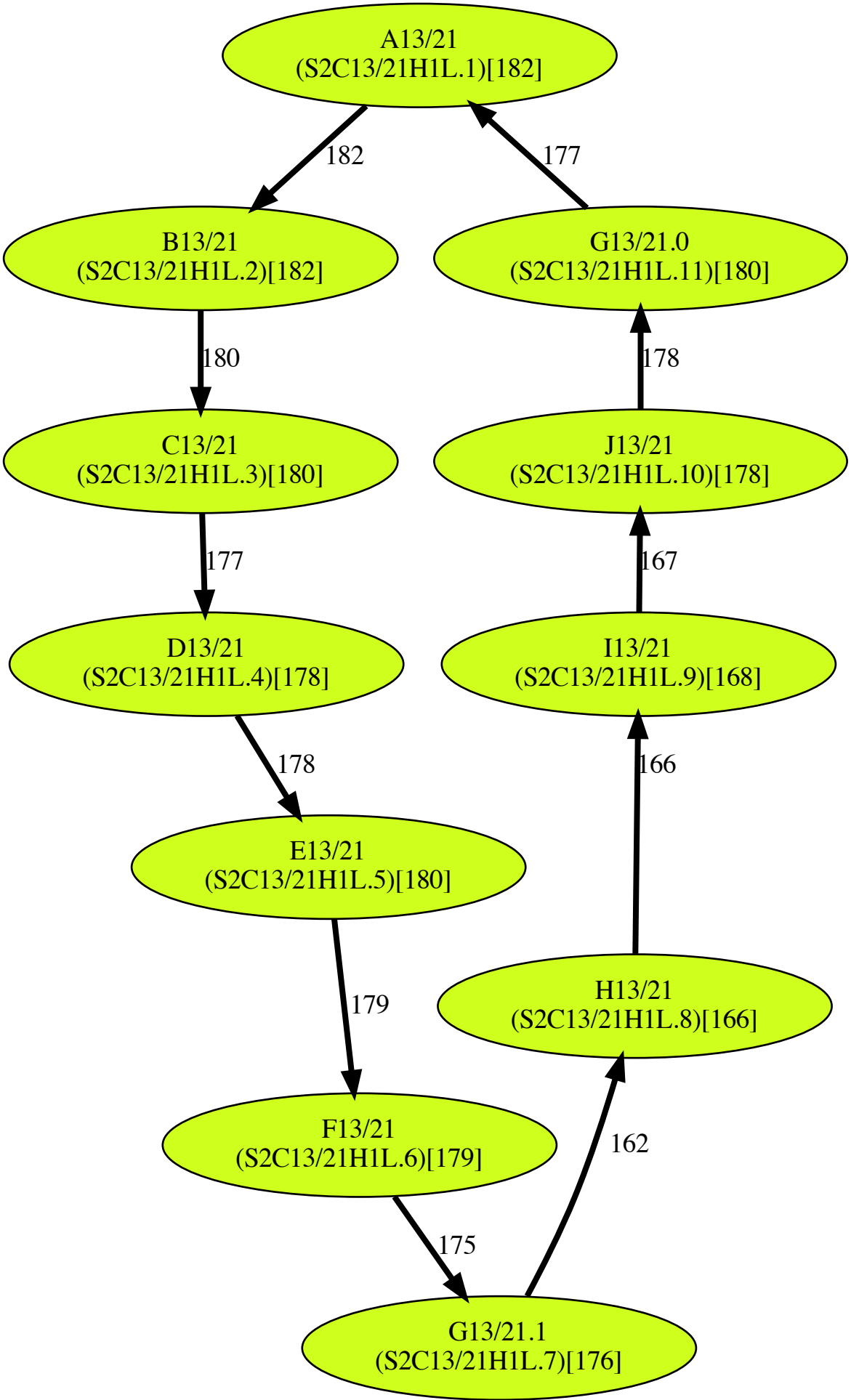


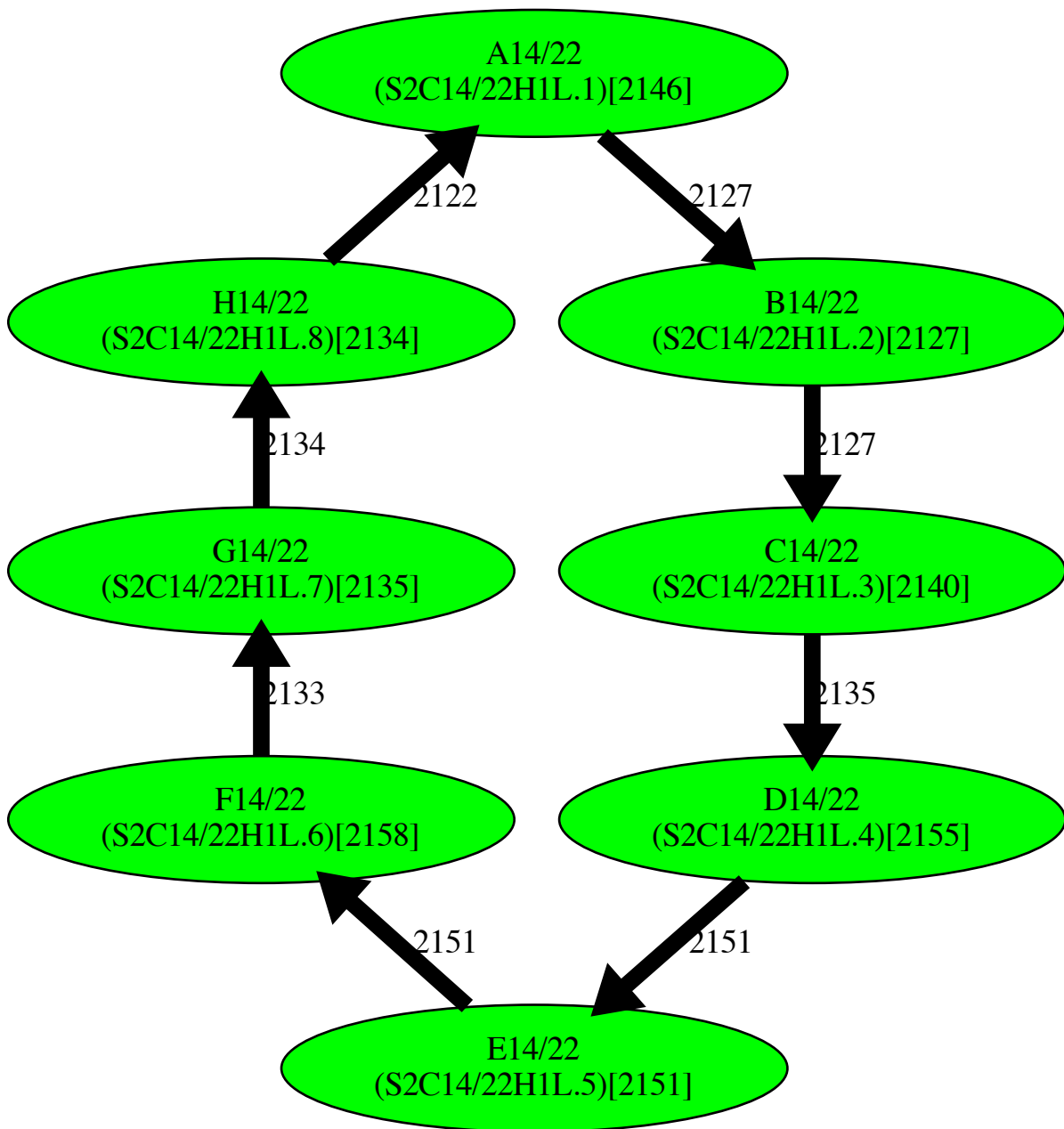
G1/19/5+F19+R19  
(S1C1/5/19H1L.6/4)[11481]

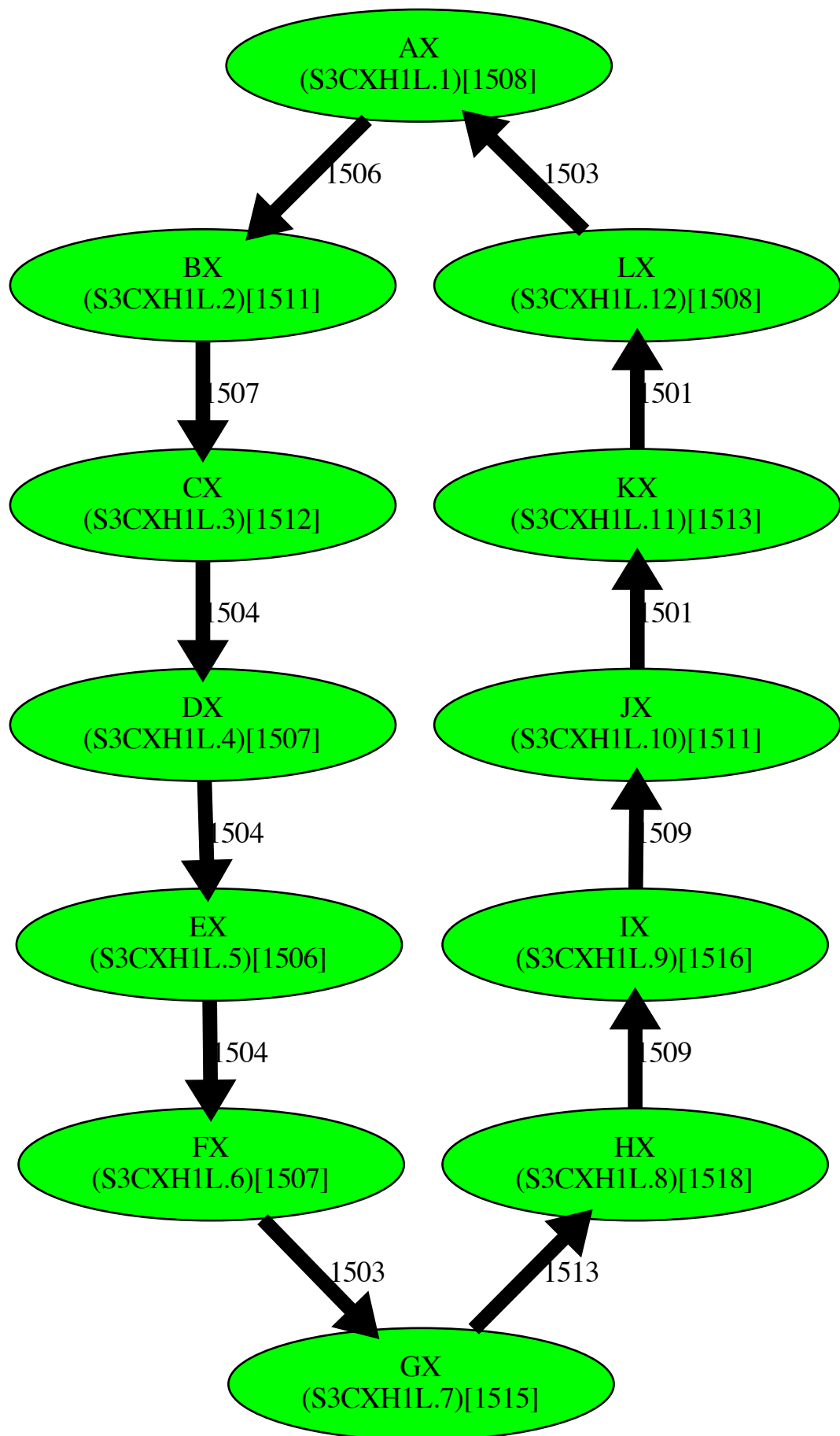
11481 11480

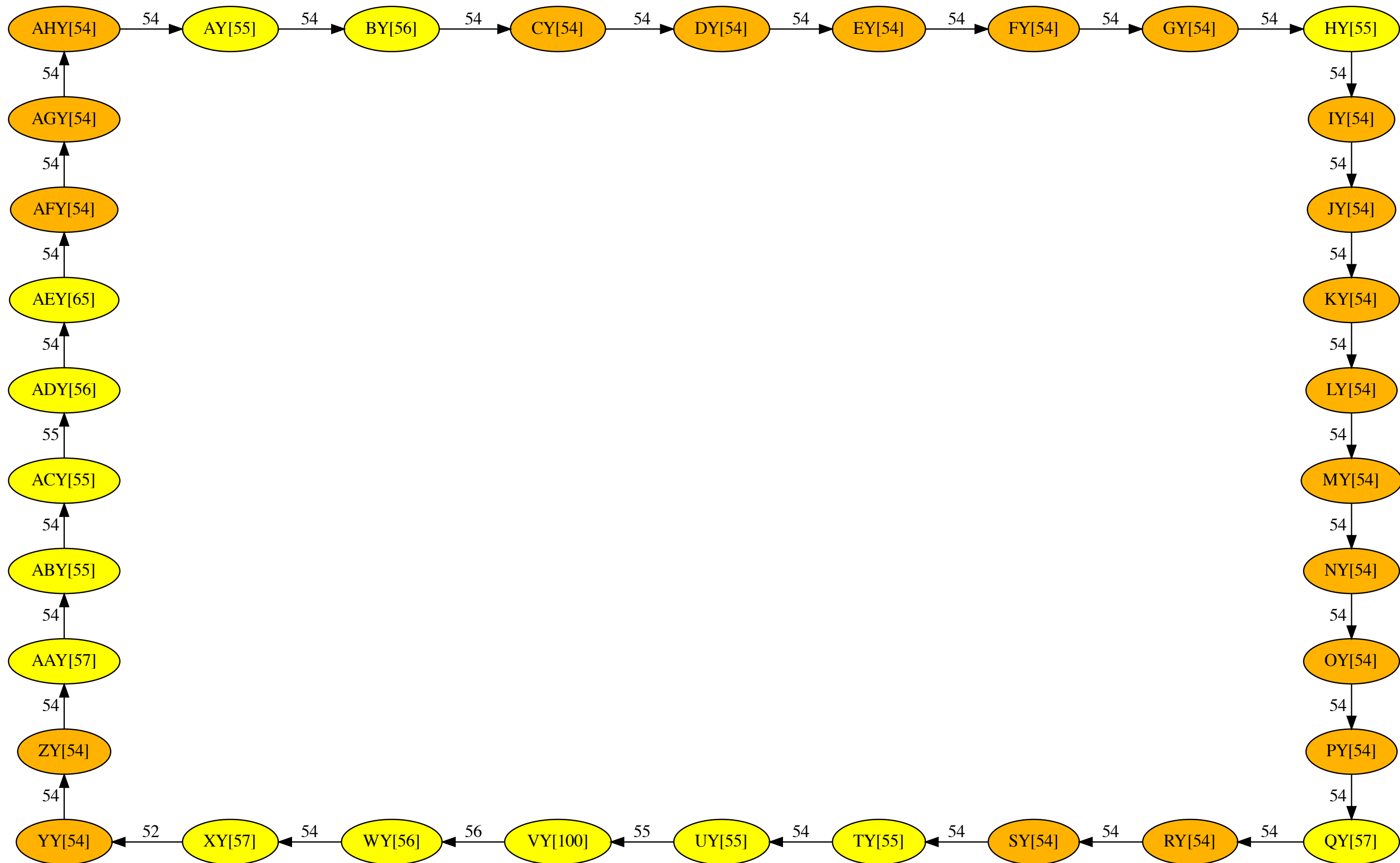
AD1/16/19/5+E1/19/5  
(S1C1/5/19H1L.5)[11485]













**Figure 4. The simplified monomer-graphs of human centromeres.** The 23 subfigures contain simplified monomer-graphs for all live human centromeres in the CHM13 cell line (centromere ID shown in the subcaption). The 24th subfigure corresponds to the centromere on chromosome Y in the HG002 genome. In each graph, vertices represent monomers *Monomers* of the corresponding *Centromere*. The label of each vertex represents the monomer ID and its count in the monocentromere *Centromere\** (in parentheses). The ID of the monomers follow the naming convention introduced in Shepelev et al., 2015. Two monomers are connected by an edge if they are consecutive in *Centromere\** — a sequence over the alphabet of *Monomers*. The weight of an edge connecting monomers *A* and *B* is defined as the number of times *A* is followed by *B* in *Centromere\**. The width of an edge (color of a vertex) reflects its multiplicity (count of a monomer). In each graph, HORmon detects heavy non-overlapping cycles and paths and removes chords in such cycles (see Methods for details). The isolated cycles in 18 centromeres (cen2, 3, 4, 6, 7, 10, 11, 12, 14, 15, 16, 17, 19, 20, 21, 22, X, and Y) represent HORs in these centromeres.