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The introduction of dendritic structural principles to macromolecular liquid crystals has gained significant advancements in recent years. Dendritic segments as integral components of mesogens show un-tapped potential and a rich area of investigation at the intersection of small molecular weight and the macromolecular liquid crystals. The investigations await to be realized further in this larger area of macromolecular liquid crystals studies. Developments so far on studies of dendritic liquid crystals are concerned primarily with varying the generation numbers, and thus changes in the dendritic molecular framework itself. As opposed to such approaches, we herein undertook a distinct effort, wherein the dendrimer generations, and thus the underlying dendrimer molecular framework, are retained in order to identify changes in the liquid crystal properties. Keeping dendrimer generations uniform, the connectors that connect the dendrimer core with the mesogen inducing cholesteryl moieties at the peripheries are varied between succinates, phthalates and succinamides. In this approach, the most of molecular constitution remains intact, excepting a change primarily at the connector type. One to three generations of poly(propyl ether imine) dendrimers, leading to nine liquid crystalline derivatives, are undertaken in the studies. The series of studies show that the type of connector, along with the dendrimer generation, tightly controls the mesophase structures. Thus, whereas dendritic liquid crystals studied show the smectic phase, that of a third generation phthalate ester derived dendritic liquid crystal exhibits a non-centered rectangular columnar structural arrangement. The study establishes tight control of the evolving mesophase structure originating from the type of connector connecting the peripheral mesogenic moieties with isotropic interior dendritic structure, even when the underlying dendrimer constitution remains intact. Such an observation is hither-to unknown in the studies of dendritic liquid crystals at large so far.