Structures, Biogenetic Relationships, and Cytotoxicity of Pimarane-Derived Diterpenes from *Petalostigma pubescens*

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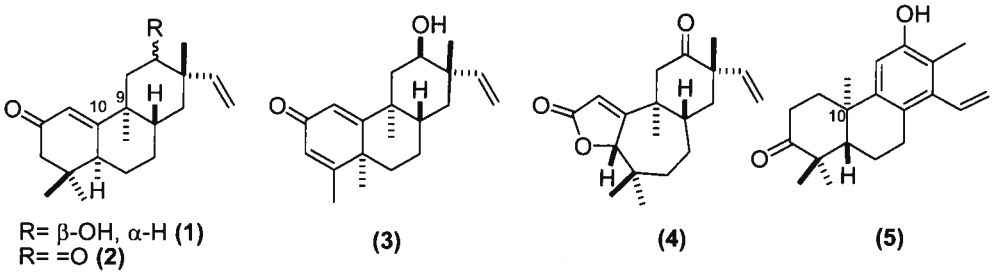
Petalostigma pubescens heartwood afforded four new, and one known, tricyclic diterpenes: 5, 9-*syn*-rosanes petalostigmones A and B (**1** and **2**), the erythroxylane petalostigmone C (**3**), the norditerpene lactone pubescenone (**4**), and the known *ent*-cleistanthane diterpene (-)-sonderianol (**5**). The new isolates **1-4** are assumed to belong to the same absolute configurational family (9αCH_3) of *ent*-pimarane-derived diterpenes as the known, co-occurring (-)-**5** (10αCH_3). Biogenetic schemes originating from a common *ent*-copalyl diphosphate intermediate are presented to rationalize the structures of these natural products. A novel ring contraction-ring expansion mechanism is suggested to account for the 7-membered B ring of pubescenone. Compounds **1-5** were evaluated for their cytotoxicity; sonderianol (**5**) showed the highest activity against mouse leukemia cell lines L1210, P388 and mouse liver cancer cells HEPA1c1c7.



Novel TACN Complexes as Estrogen Receptor Ligands for Tumor Imaging

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Breast cancer is the most prevalent form of cancer in U.S. women and the second leading cause of cancer-related deaths. Early detection of tumors is essential for survival, also determination of estrogen receptor levels is vital for making the appropriate treatment choices. While imaging estrogen receptor levels in tumors can be done using ^{18}F-labeled estrogens, it is important to develop receptor imaging agents labeled with the widely available, and less expensive, technetium-99m radionuclide. We are exploring the design and evaluation of metal carbonyl complexes of cyclic tridentate ligands as potential ligands for the estrogen receptor. The cyclic chelates being explored are based on 1,4,7-triazacyclononane (tacn), 1,4-diaza-7-thiacyclononane and 7-aza-1,4-dithiacyclononane. Targets are illustrated in Figure 1.

Figure 1