9-cis Retinoic Acid (R1777) is a form of vitamin A. 9-cis Retinoic acid is an endogenous ligand for retinoid X receptors, and like other retinoids, also activates retinoic acid receptors\(^1\). Retinoids such as 9-cis retinoic acid play a significant role in cell proliferation, cell differentiation, immune function, growth of bone tissue, and activation of tumor suppressor genes. This compound is one of the first commercially utilized retinoids; it displays therapeutic activity in the treatment of Kaposi’s sarcoma and chronic hand eczema\(^2-3\). 9-cis Retinoic acid also exhibits potential benefit in the treatment of other cutaneous disorders such as pityriasis rubra pilaris\(^4\).

9-cis Retinoic acid displays anticancer activity in the treatment of other cancers as well, including hormone-dependent tumors. Adrenocortical cancer is associated with reductions in endogenous retinoic acid production. In models of adrenocortical cancer, 9-cis retinoic acid decreases cell viability and steroid hormone secretion likely through disruption of cell cycle regulation. In animal models of this cancer, this compound decreases tumor growth\(^5\). In models of breast cancer, 9-cis retinoic acid suppresses cell proliferation by altering the interaction between retinoid X receptor α (RXRa) and replication factor C3 (RFC3); this appears to be the same mechanism by which this compound alters developmental embryonic cell proliferation\(^6\).

9-cis Retinoic acid also exhibits antioxidative and neuroprotective activities. In models of neurotoxicity induced by methamphetamine administration, 9-cis retinoic acid improves locomotor activity and striatal tyrosine hydroxylase levels, limiting dopaminergic neurodegeneration\(^7\). This compound improves motor activity and minimizes neurodegenerative symptoms in animal models of Parkinson’s disease as well\(^8\).

This compound is relevant to many other additional research applications. Retinoids are known to play a key role in maintenance of immune function. In several cellular models, 9-cis retinoic acid stimulates immune cell adhesion in both integrin-dependent and integrin-independent manners\(^9\). Additionally, 9-cis retinoic acid enhances lymphatic vessel proliferation and regeneration in animal models, decreasing symptoms of lymphedema\(^10\).

**Other retinoids available include:**
- All-trans Retinol (R1876)
- All-trans Retinol (high purity, R1877)
- Trans-retinoic Acid (R1870)
- 13-cis Retinoic Acid (R1779)
- Retinyl Palmitate (R1879)
- Retinyl Acetate (R1878)
- Etrtinate (E7668)
- Acitretin (A0933)

*And many others!*

References:
2. King T, McKenna J, and Alexandroff AB. Patient Prefer Adherence, 2014 Nov. 8:1629-34.