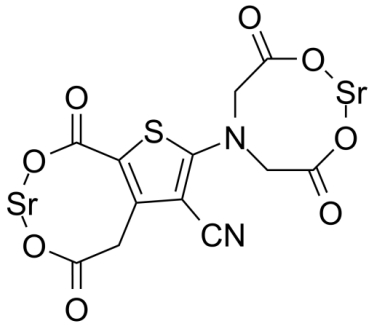
Data Sheet

Product Name:	Strontium Ranelate
Cat. No.:	CS-1125
CAS No.:	135459-87-9
Molecular Formula:	C12H6N2O8SSr2
Molecular Weight:	513.49
Target:	CaSR
Pathway:	GPCR/G Protein
Solubility:	DMSO : < 1 mg/mL (insoluble or slightly soluble)



BIOLOGICAL ACTIVITY:

Strontium Ranelate (S12911) is an antiosteoporotic agent that acts by reducing bone resorption and promoting bone formation, thereby inducing a positive bone balance. Strontium Ranelate also can activate the **calcium-sensing receptor (CaSR)** in non skeletal cells, resulting in the activation of inositol 1, 4, 5-triphosphate production and mitogen-activated protein kinase signaling[1][2]. **In Vitro:** Strontium Ranelate (0.1-1 mM; 22 days; Mouse calvaria cells) treatment shows the expression of mRNA for early osteoblast markers (alkaline phosphatase, ALP) is visualized by day 5, while late markers (osteocalcin, OCN) are detectable only by day 15 and beyond[1].

Strontium Ranelate (0.1-1 mM; 22 days; Mouse calvaria cells) treatment results in significantly increases the mRNA expression of the osteoblastic markers ALP, BSP and OCN at day 22 of MC cell culture[1].

Strontium Ranelate is found to increase alkaline phosphatase activity and prostaglandin E2 production in a COX-2 dependent manner in murine marrow stromal cells[2]. **In Vivo:** Strontium Ranelate increases bone formation and decreased bone resorption, which results in increased bone mass in the vertebrae of intact adult mice[2].

In intact adult rats, Strontium Ranelate also increases bone mass, as measured by dual-energy X-ray absorptiometry, in lumbar vertebra and femur, and this is confirmed by histological assessment of trabecular bone volume in the tibial metaphysis[2].

Strontium Ranelate is found to decrease bone resorption and to increase bone formation in alveolar bone in normal adult monkeys (Macaca fascicularis), which exhibits extensive bone remodeling[2].

In ovariectomized rats, short-term (3 months) treatment with Strontium Ranelate prevents trabecular bone loss induced by oestrogen deficiency, as demonstrated by bone ash, bone mineral content and histomorphometric analysis in the tibial metaphysis. This effect results from decreased bone resorption while bone formation was maintained. These beneficial effects of Strontium Ranelate on bone mass and microarchitecture in ovariectomized rats are confirmed in long-term experiments. In this long-term study (2 years), the increase in bone mass and microarchitecture induced by Strontium Ranelate results in a marked improvement in bone strength, supporting the beneficial effect of this drug on bone resistance[2].

References:

[1]. Bonnelye E, Chabadel A, Saltel F, Jurdic P. Dual effect of strontium ranelate: stimulation of osteoblast differentiation and inhibition of osteoclast formation and resorption in vitro. Bone. 2008 Jan;42(1):129-38. Epub 2007 Sep 12.

[2]. Marie PJ. Strontium ranelate: a dual mode of action rebalancing bone turnover in favour of bone formation. Curr Opin Rheumatol. 2006 Jun;18 Suppl 1:S11-5.

CAIndexNames:

3-Thiopheneacetic acid, 5-[bis(carboxymethyl)amino]-2-carboxy-4-cyano-, strontium salt (1:2)

SMILES:

O=C(O[Sr]OC(C1)=O)C2=C1C(C#N)=C(N3CC(O[Sr]OC(C3)=O)=O)S2

Caution: Product has not been fully validated for medical applications. For research use only.

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