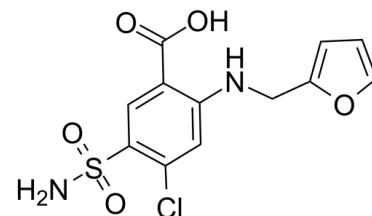


## Data Sheet

<b>Product Name:</b>	Furosemide
<b>Cat. No.:</b>	CS-1915
<b>CAS No.:</b>	54-31-9
<b>Molecular Formula:</b>	C <sub>12</sub> H <sub>11</sub> ClN <sub>2</sub> O <sub>5</sub> S
<b>Molecular Weight:</b>	330.74
<b>Target:</b>	NKCC
<b>Pathway:</b>	Membrane Transporter/Ion Channel
<b>Solubility:</b>	DMSO : ≥ 100 mg/mL (302.35 mM); H <sub>2</sub> O : < 0.1 mg/mL (insoluble)



### BIOLOGICAL ACTIVITY:

Furosemide (Lasix) is a loop diuretic inhibitor of Na<sup>+</sup>/2Cl<sup>-</sup>/K<sup>+</sup> (NKCC) cotransporter of which used in the treatment of congestive heart failure and edema. Target: NKCC Furosemide (INN/BAN) or frusemide is a loop diuretic used in the treatment of congestive heart failure and edema. It is most commonly marketed by Sanofi under the brand name Lasix, and also under the brand names Fusid and Frumex. It has also been used to prevent Thoroughbred and Standardbred race horses from bleeding through the nose during races. Along with some other diuretics, furosemide is also included on the World Anti-Doping Agency's banned drug list due to its alleged use as a masking agent for other drugs. Furosemide, like other loop diuretics, acts by inhibiting NKCC2, the luminal Na-K-2Cl symporter in the thick ascending limb of the loop of Henle. The action on the distal tubules is independent of any inhibitory effect on carbonic anhydrase or aldosterone; it also abolishes the corticomedullary osmotic gradient and blocks negative, as well as positive, free water clearance. Because of the large NaCl absorptive capacity of the loop of Henle, diuresis is not limited by development of acidosis, as it is with the carbonic anhydrase inhibitors. Additionally, furosemide is a noncompetitive subtype-specific blocker of GABA-A receptors. Furosemide has been reported to reversibly antagonize GABA-evoked currents of α6β2γ2 receptors at μM concentrations, but not α1β2γ2 receptors. During development, the α6β2γ2 receptor increases in expression in cerebellar granule neurons, corresponding to increased sensitivity to furosemide

### References:

- [1]. Rais-Bahrami K, et al. Use of furosemide and hearing loss in neonatal intensive care survivors. Am J Perinatol. 2004 Aug;21(6):329-32.
- [2]. Tia S, et al. Developmental changes of inhibitory synaptic currents in cerebellar granule neurons: role of GABA (A) receptor alpha 6 subunit. J Neurosci. 1996 Jun 1;16(11):3630-40.
- [3]. Korpi ER, et al. Selective antagonist for the cerebellar granule cell-specific gamma-aminobutyric acid type A receptor. Mol Pharmacol. 1995 Feb;47(2):283-9.

### CAIndexNames:

Benzoic acid, 5-(aminosulfonyl)-4-chloro-2-[(2-furanylmethyl)amino]-

### SMILES:

O=C(O)C1=CC(S(=O)(N)=O)=C(Cl)C=C1NCC2=CC=CO2

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

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