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## Product Data Sheet

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Product Name: Vincristine-d3-ester sulfate

Cat. No.: GC64451

### Chemical Properties

Cas. No. 1217854-24-4

Formula C<sub>46</sub>H<sub>55</sub>D<sub>3</sub>N<sub>4</sub>O<sub>14</sub>S M.Wt 926.05

Solubility Storage Store at -20°C, protect from light, stored under nitrogen

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT, or blue ice upon request.

Structure

### Background

Vincristine-d3-ester (Leurocristine-d3-ester) sulfate is the deuterium labeled Vincristine sulfate. Vincristine sulfate is an antitumor vinca alkaloid which inhibits microtubule formation in mitotic spindle, resulting in an arrest of dividing cells at the metaphase stage. It binds to microtubule with a  $K_i$  of 85 nM[1].

Stable heavy isotopes of hydrogen, carbon, and other elements have been incorporated into drug molecules, largely as tracers for quantitation during the drug development process. Deuteration has gained attention because of its potential to affect the pharmacokinetic and metabolic profiles of drugs[1].

[1]. Russak EM, et al. Impact of Deuterium Substitution on the Pharmacokinetics of Pharmaceuticals. *Ann Pharmacother.* 2019;53(2):211-216.

[2]. Jordan, M.A., et al. Comparison of the effects of vinblastine, vincristine, vindesine, and vinepidine on microtubule dynamics and cell proliferation in vitro. *Cancer Res*, 1985. 45(6): p. 2741-7.

[3]. Gidding, C.E., et al, Vincristine revisited. *Crit Rev Oncol Hematol*, 1999. 29(3): p. 267-87.

[4]. Donoso, J.A., et al, Action of the vinca alkaloids vincristine, vinblastine, and desacetyl

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

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vinblastine amide on axonal fibrillar organelles in vitro. Cancer Res, 1977. 37(5): p. 1401-7.

[5]. Horton, J.K., et al. Relationships between tumor responsiveness, vincristine pharmacokinetics and arrest of mitosis in human tumor xenografts. Biochem Pharmacol, 1988. 37(20): p. 3995-4000.

[6]. Baguley, B.C., et al, Inhibition of growth of colon 38 adenocarcinoma by vinblastine and colchicine: evidence for a vascular mechanism. Eur J Cancer, 1991. 27(4): p. 482-7.

[7]. Zhang D, et al. Co-delivery nanoparticles with characteristics of intracellular precision release drugs for overcoming multidrug resistance. Int J Nanomedicine. 2017 Mar 16;12:2081-2108.

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