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| <b>Product Name:</b>             | Coumermycin A1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Product Number:</b>           | C219                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>CAS Number:</b>               | 4434-05-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Molecular Formula:</b>        | C <sub>55</sub> H <sub>59</sub> N <sub>5</sub> O <sub>20</sub>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Molecular Weight:</b>         | 1110.08                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Description:</b>              | Coumermycin A1 is a member of the aminocoumarin family of antibiotics, with antibacterial activity against staphylococci and other gram-positive bacteria and some select gram-negative bacteria.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Mechanism of Action:</b>      | Coumermycin A1 targets the B subunit of the bacterial DNA gyrase, inhibiting DNA synthesis.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Microbiology Applications</b> | Coumermycin A1 is often used to select for cells with a mutation in the <i>gyrB</i> gene which confers resistance to Coumermycin A1.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>References:</b>               | <p>Engle, E. C., Manes, S. H., &amp; Drlica, K. (1982). Differential Effects of Antibiotics Inhibiting Gyrase. <i>Journal of Bacteriology</i>, 149(1), 92–98.</p> <p>Fedorko, J., Katz, S., &amp; Allnoch, H. (1969). In Vitro Activity of Coumermycin A1. <i>Applied Microbiology</i>, 18(5), 869–873.</p> <p>Samuels, D. S., Marconi, R. T., Huang, W. M., &amp; Garon, C. F. (1994). <i>GyrB</i> mutations in coumermycin A1-resistant <i>Borrelia burgdorferi</i>. <i>Journal of Bacteriology</i>, 176(10), 3072–3075. doi:10.1128/jb.176.10.3072-3075.1994</p> <p>Schmutz, E., Muhlenweg, A., Li, S. ., &amp; Heide, L. (2003). Resistance genes of Aminocoumarin producers: Two type II Topoisomerase genes confer resistance against Coumermycin A1 and Clorobiocin. <i>Antimicrobial Agents and Chemotherapy</i>, 47(3), 869–877. doi:10.1128/aac.47.3.869-877.2003</p> |