1. (10 points) The neuraminidase inhibitor zanamivir (Relenza®) has recently received regulatory approval in the United States and the European Union to be marketed for the treatment of influenza. In the United States, the approval comes after a three-month extension granted by the FDA to further review the New Drug Application (NDA) following the agency's Antiviral Drugs Advisory Committee meeting.

Zanamivir's mode of action is to prevent the spread of infection from one cell to another within the respiratory tract. The product is delivered via a simple inhaler direct to the airways. Large-scale clinical trials involving more than 6,000 patients have demonstrated that patients treated with Relenza had less severe symptoms of influenza throughout the course of their illness, recovered more quickly and returned to their normal lives more rapidly than those receiving placebo.

Locate and identify all the stereocenters in zanamivir. Assign the configuration of only three of those stereocenters.