

## Sterols of *Pneumocystis carinii hominis* Organisms Isolated from Human Lungs

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Received 6 May 1999/Returned for modification 2 July 1999/Accepted 17 August 1999

The opportunistic pathogen *Pneumocystis carinii* causes pneumonia (*P. carinii* pneumonia, or PCP) in immunocompromised individuals such as AIDS patients. Rat-derived *P. carinii carinii* organisms have distinct sterols which are not synthesized by mammals and not found in other microbes infecting mammalian lungs. The dominant sterol present in the organism is cholesterol (which is believed to be scavenged from the host), but other sterols in *P. carinii carinii* have an alkyl group at C-24 of the sterol side chain (C<sub>28</sub> and C<sub>29</sub> 24-alkylsterols) and a double bond at C-7 of the nucleus. Recently, pneumocysterol (C<sub>32</sub>), which is essentially lanosterol with a C-24 ethylidene group, was detected in lipids extracted from a formalin-fixed human *P. carinii*-infected lung, and its structures were elucidated by gas-liquid chromatography, mass spectrometry, and nuclear magnetic resonance spectrometry in conjunction with analyses of chemically synthesized authentic standards. The sterol composition of isolated *P. carinii hominis* organisms has yet to be reported. If *P. carinii* from animal models is to be used for identifying potential drug targets and for developing chemotherapeutic approaches to clear human infections, it is important to determine whether the 24-alkylsterols of organisms found in rats are also present in organisms in humans. In the present study, sterol analyses of *P. carinii hominis* organisms isolated from cryopreserved human *P. carinii*-infected lungs and from bronchoalveolar lavage fluid were performed. Several of the same distinct sterols (e.g., fungisterol and methylcholest-7-ene-3 $\beta$ -ol) previously identified in *P. carinii carinii* were also present in organisms isolated from human specimens. Pneumocysterol was detected in only some of the samples.

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