We report a case of severe daptomycin-induced immune thrombocytopenia in a patient treated for methicillin-resistant *Staphylococcus epidermidis* and ampicillin-resistant *Enterococcus faecalis* bacteremia acquired in an intensive care unit. Serum antibodies bound to platelets in the presence of daptomycin on flow cytometry. There was no evidence of other causes of thrombocytopenia. The patient died of brain herniation complicating extensive cerebral hemorrhage. To our knowledge, this is the first described case of daptomycin-induced thrombocytopenia.

Factors capable of inducing thrombocytopenia may occur in critically ill patients. Among these factors, the most common were ruled out. Furthermore, in the presence of daptomycin, flow cytometry showed elevated platelet surface-bound immunoglobulins and serum antiplatelet antibodies, indicating immunological platelet destruction. Although a role for daptomycin is probable, the exact mechanism underlying the patient’s thrombocytopenia remains unclear. Drug-induced thrombocytopenia can be related to binding of the IgG Fab...
fragment to circulating platelets. In our patient, enzyme-linked immunosorbent assays were negative for antibodies to platelet glycoproteins (anti Gp IIb/IIIa, anti Gp Ib/IX, and anti Gp Ia/IIa). This finding indicates either that the antibody recognized an untested glycoprotein target or that the drug acted as a hapten-eliciting antibody binding to the platelet surface (1). Finally, specific antibodies due to closely related chemicals can be present naturally, in the absence of previous drug exposure (1). Third, although the flow cytometry assay has been standardized for a wide range of drugs, the optimal plasma daptomycin concentration for antiplatelet antibody testing is not known. The use of an excessively high daptomycin concentration might result in nonspecific IgG binding to platelets. However, according to the model proposed by Bougie et al. (2), the drug concentration does not influence antibody binding. According to this model, a drug can react with both the antibody and the target protein, increasing the affinity of these two molecules for each other.

In conclusion, our case report strongly suggests that the recently introduced antibiotic daptomycin is associated with severe drug-dependent thrombocytopenia.

ACKNOWLEDGMENT
We thank A. Wolfe for helping to prepare the manuscript.

REFERENCES