Three serological techniques (indirect immunofluorescence test, flow cytometry, and indirect dot–blot immunoenzymatic assay) have been evaluated for the detection of lymphocystis viral antigens using a gilt-head seabream cell line, SAF-1, and fish leukocytes. Six lymphocystis disease virus (LCDV) isolates from gilt-head seabream, and one reference strain (ATCC VR 342), were tested. Detection of viral LCDV antigens in SAF-1 cells and fish leukocytes by indirect immunofluorescence test occurs at similar periods (5–7 d post-inoculation), and viral antigens were detected as cytoplasmic inclusions located at the periphery of inoculated cells. The percentages of cells with LCDV antigens obtained by flow cytometry were very low, ranging between 0.9% at 5 d post-inoculation and 19.7% at 10 d post-inoculation. The optimal concentration of viral stocks detected by indirect dot–blot immunoenzymatic assay was 0.5 µg ml–1, when purified viral stocks were used as antigens. Inoculated and uninoculated SAF-1 cells could not be distinguished using LCDV antisera binding. On the basis of these results, indirect immunofluorescence and flow cytometry tests appear to be the best serological methods to detect LCDV antigens in both SAF-1 cells and fish leukocytes.