and orange cell emitted a fluorescence longer than 475 nm and 530 nm, respectively. However, no fluorescence was detected from the signet ring cell, amoebocyte, granular amoebocyte or lymphocyte (fig.).

In contrast to earlier results[3-5], we have verified that the signet ring cell is the vanadocyte in *A. ahodori* after fractionation of cells on a Ficoll density gradient, ESR spectrometry and neutron activation analysis of vanadium[9]. Our conclusions are supported by evidence obtained by X-ray microanalysis[10-12].

If the tunichrome is involved in the accumulation of vanadium ions in ascidian blood cells, it would seem necessary that the vanadocyte (the signet ring cell) contain the tunichrome. However, no fluorescence due to the tunichrome was detected in the vanadocytes from *A. ahodori*.

We have extracted a vanadium-binding substance called vanadobin from the blood cells of *A. sydneiensis samea*. This substance is colorless and can maintain the vanadium ion in the vanadyl form (VO (IV)) even under aerobic conditions. Moreover, this substance has an affinity for exogenous vanadium ions (V) and contains a reducing sugar[13]. Taking all the above data into account, we suggest that it is not the tunichrome but rather the vanadobin that is the substance involved in the accumulation of vanadium ions from seawater in ascidian blood cells.

de Vincentiis and his co-worker first noted the emission of fluorescence from ascidian blood cells and the follicle and test cells of ascidian eggs[14,15]. Recently, it has been reconfirmed, in a detailed study, that ascidian eggs emit fluorescence from the myoplasmic region of the cytoplasm[16]. It will be of interest to determine the substance(s) from which such autonomous fluorescence is derived.

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