

# VCAM-1 と $\alpha 4 \beta 1$ インテグリンは、マウス精巢の再凝集培養で精巢が再構築される機構に關与する

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## VCAM1- $\alpha 4 \beta 1$ integrin interaction mediates interstitial tissue reconstruction in 3-D re-aggregate culture of dissociated prepubertal mouse testicular cells

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**ABSTRACT** Roles of interstitial tissue in morphogenesis of testicular structures remain less well understood. To analyze the roles of CD34+ cells in the reconstruction of interstitial tissue containing Leydig cells (LCs), and testicular structures, we used 3D-reaggregate culture of dissociated testicular cells from prepubertal mouse. After a week of culture, adult Leydig cells (ALCs) were preferentially incorporated within CD34+ cell-aggregates, but fetal LCs (FLCs) were not. Immunofluorescence studies showed that integrins  $\alpha 4$ ,  $\alpha 9$  and  $\beta 1$ , and VCAM1, one of the ligands for integrins  $\alpha 4 \beta 1$  and  $\alpha 9 \beta 1$ , are expressed mainly in CD34+ cells and ALCs, but not in FLCs. Addition of function-blocking antibodies against each integrin and VCAM1 to the culture disturbed the reconstruction of testicular structures. Antibodies against  $\alpha 4$  and  $\beta 1$  integrins and VCAM1 robustly inhibited cell-to-cell adhesion between testicular cells and between CD34+ cells. Cell-adhesion assays indicated that CD34+ cells adhere to VCAM1 through the interaction with  $\alpha 4 \beta 1$  integrin. Live cell imaging showed that CD34+ cells adhered around ALC-aggregates. CD34+ cells on the dish moved toward the aggregates, extending filopodia, and entered into them, which was disturbed by VCAM1 antibody. These results indicate that VCAM1- $\alpha 4 \beta 1$  integrin interaction plays pivotal roles in formation of testicular interstitial tissues in vitro and also in vivo.

**抄録** VCAM-1 と  $\alpha 4 \beta 1$  インテグリンを用いた抗体から、VCAM-1 と  $\alpha 4 \beta 1$  インテグリンとの相互作用がマウス精巢の再凝集培養で精巢が再構築される機構に關与することを明らかにした。

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