

Identification of genes expressed specifically in the cement gland of the cypris larvae of the barnacle *Megabalanus rosa*.

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The permanent attachment of the barnacle cyprids is initiated by the release of special adhesives, the so-called cement. The cement is stored in the large secretory granules found in the cells of the cypris cement glands. Although the cement has been thought to be composed of proteinaceous mixture, no group has ever been purified. No gene related to them has been cloned. To identify cement genes, we have characterized clones expressed specifically in the cement glands of the cypris larvae of the barnacle *Megabalanus rosa*.

Total RNA was extracted from 100 cement glands isolated from 0-2 days old *M. rosa* cypris larvae with NucleoSpin RNA II kit (Macherey-Nagel). A directional plasmid cDNA library was constructed using Creator SMART cDNA library construction kit (BD Biosciences) with SUPER SMART cDNA construction technology (BD) for preparing ds cDNA. SSH probes were constructed from the cement glands (tester) and carapace (driver) of the cypris larvae of *M. rosa* with PCR-select cDNA subtraction kit (BD).

5'-one pass sequencing and differential screening by SSH probes, of 576 randomly picked clones from the full-length cement gland cDNA library, revealed the unique nature of expressed genes in the cement glands: 1) About half of the clones were found to be cement gland-specific. 2) Some highly expressed, cement gland-specific clones have so far no homology to known genes with potential signal peptide sequence. 3) The two groups of clones, potentially encoding cement gland specific proteins, 36k and 57k respectively, were found.

Identification of cement genes and elucidation of cement hardening mechanism will be beneficial for the development of new adhesives working in salt water environment and anti-biofouling.