



Cover: On their oral surface, sea stars possess hundreds of small adhesive appendages, the tube feet. These organs allow them to attach strongly but reversibly to rock substrates or to other surfaces in the sea. This so-called temporary adhesion is one of the four types of adhesion encountered in marine organisms, the other being permanent (e.g. in mussels or tubeworms), transitory (e.g. limpets) and instantaneous (e.g. sea cucumbers) adhesion. Hennebert et al. (bio037358) investigated the presence of sulfated biopolymers in these five marine invertebrates, representative of the four types of adhesion. Sulfated macromolecules were identified in the secretory cells and adhesive secretions of all species except the tubeworm. However, they appear to play a role only in the non-permanent adhesion of sea stars and limpets in which they could mediate cohesion within the adhesive material. Image licensed under a Creative Commons Attribution 4.0 International license.

RESEARCH ARTICLES

Plag1 and *Plagl2* have overlapping and distinct functions in telencephalic development

Adnani, L., Dixit, R., Chen, X., Balakrishnan, A., Modi, H., Touahri, Y., Logan, C. and Schuurmans, C.

bio038661

Effects of drought stress on photosynthesis and photosynthetic electron transport chain in young apple tree leaves

Wang, Z., Li, G., Sun, H., Ma, L., Guo, Y., Zhao, Z., Gao, H. and Mei, L.

bio035279

Assessment of high-fat-diet-induced fatty liver in medaka

Fujisawa, K., Takami, T., Fukui, Y., Nagatomo, T., Saeki, I., Matsumoto, T., Hidaka, I., Yamamoto, N., Okamoto, T., Furutani-Seiki, M. and Sakaida, I.

bio031534

Differences in the morphology, physiology and gene expression of honey bee queens and workers reared *in vitro* versus *in situ*

De Souza, D. A., Kaftanoglu, O., De Jong, D., Page, R. E., Jr. Amdam, G. V. and Wang, Y.

bio036616

PWP1 promotes nutrient-responsive expression of 5S ribosomal RNA

Liu, Y., Cerejeira Matos, R., Heino, T. I. and Hietakangas, V.

bio037911

Characterization of spatial and temporal development of Type I and Type II hair cells in the mouse utricle using new cell-type-specific markers

McInturff, S., Burns, J. C. and Kelley, M. W.

bio038083

The effects of AICAR and rapamycin on mitochondrial function in immortalized mitochondrial DNA mutator murine embryonic fibroblasts

Delic, V., Noble, K., Zivkovic, S., Phan, T.-A., Reynes, C., Zhang, Y., Phillips, O., Claybaker, C., Ta, Y., Dinh, V. B., Cruz, J., Prolla, T. A. and Bradshaw, P. C.

bio033852

Long non-coding RNA PICSAR decreases adhesion and promotes migration of squamous carcinoma cells by downregulating $\alpha 2\beta 1$ and $\alpha 5\beta 1$ integrin expression

Piipponen, M., Heino, J., Kähäri, V.-M. and Nissinen, L.

bio037044

The mechanistic insight of a specific interaction between 15d-Prostaglandin-J2 and eIF4A suggests an evolutionary conserved role across species

Yun, S. J., Kim, H., Jung, S.-H., Kim, J. H., Ryu, J. E., Singh, N. J., Jeon, J., Han, J.-K., Kim, C.-H., Kim, S., Jang, S. K. and Kim, W. J.

bio035402

Evolution and multiple origins of zona pellucida genes in vertebrates

Feng, J.-M., Tian, H.-F., Hu, Q.-M., Meng, Y. and Xiao, H.-B.

bio036137

Basal constriction during midbrain–hindbrain boundary morphogenesis is mediated by Wnt5b and focal adhesion kinase

Gutzman, J. H., Graeden, E., Brachmann, I., Yamazoe, S., Chen, J. K. and Sive, H.

bio034520

Retinoic acid-induced CYP51 nuclear translocation promotes meiosis prophase I process and is correlated to the expression of REC8 and STAG3 in mice

Mu, X., Wen, J., Chen, Q., Wang, Z., Wang, Y., Guo, M., Yang, Y., Xu, J., Wei, Z., Xia, G., Yang, M. and Wang, C.

bio035626

Comparison of circulating metabolite concentrations in dogs and cats when allowed to freely choose macronutrient intake

Hall, J. A., Jackson, M. I., Vondran, J. C., Vanchina, M. A. and Jewell, D. E.

bio036228

Drosophila Ror is a nervous system-specific co-receptor for Wnt ligands

Ripp, C., Loth, J., Petrova, I., Linnemannstöns, K., Uleplic, M., Fradkin, L., Noordermeer, J. and Wodarz, A.

bio033001

The role of integrin $\beta 1$ in the heterogeneity of human embryonic stem cells culture

Kallas-Kivi, A., Trei, A., Stepanjuk, A., Ruisu, K., Kask, K., Pooga, M. and Maimets, T.

bio034355

Involvement of sulfated biopolymers in adhesive secretions produced by marine invertebrates

Hennebert, E., Gregorowicz, E. and Flammang, P.

bio037358

Characterisation of maturation of photoreceptor cell subtypes during zebrafish retinal development

Crespo, C. and Knust, E.

bio036632

METHODS AND TECHNIQUES

A sample preparation workflow for adipose tissue shotgun proteomics and proteogenomics

Khudyakov, J. I., Deyarmin, J. S., Hekman, R. M., Pujade Busqueta, L., Maan, R., Mody, M. J., Banerjee, R., Crocker, D. E. and Champagne, C. D.

bio036731

DARPin recognize mTFP1 as novel reagents for *in vitro* and *in vivo* protein manipulations

Vigano, M. A., Bieli, D., Schaefer, J. V., Jakob, R. P., Matsuda, S., Maier, T., Plückthun, A. and Affolter, M.

bio036749

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