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# **ШКОЛА по теоретической и морской ПАРАЗИТОЛОГИИ**

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## **Muscle architecture of the haptor of *Lamellodiscus* (Monogenea: Diplectanidae)**

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Monogeneans of the family Diplectanidae attach to the gill lamellae of their hosts using sclerites of the complex attachment organ (haptor). In most diplectanids, the haptoral armature comprises two pairs of anchors, an unpaired ventral bar, a pair of dorsal bars, 7 pairs of marginal hooks and two (dorsal and ventral) attachment discs. The haptoral sclerites are operated by a complicated system of muscles, and although the morphology of the haptoral musculature may have both functional and taxonomic importance, its architecture in diplectanids has been insufficiently studied and is known only in four species of the genus *Diplectanum*. The aim of the present study was to examine the haptoral musculature in two diplectanid species of the genus *Lamellodiscus* (*L. fraternus* and *L. elegans*) in comparison with the previously studied species of *Diplectanum*, using phalloidin staining for muscle in conjunction with confocal microscopy. The musculature of anchors and bars in *L. fraternus* and *L. elegans* was shown to consist of at least 14 major muscles; the arrangement and morphology of some of these muscles differs between the two species. The musculature of the attachment discs of *Lamellodiscus* (lamellodiscs) is composed of muscle bands that extend from each lamella of the disc, a circular muscle associated with the anterior (closed) lamella, a pair of muscles that extend anteriorly and attach to the body wall in front of the haptor and another pair of muscles connecting the opposite lamellodiscs.

The majority of the muscles operating the anchors and bars in *Lamellodiscus* have their homologues in the haptor of *Diplectanum*. The musculature of the lamellodisc is simpler than the system of muscles in the squamodisc of *Diplectanum*, which complicates the comparison of muscle arrangement between these two types of attachment discs.

The results of the present study suggest that the haptoral musculature can be successfully used in diplectanid taxonomy.

*Confocal studies were performed at the Taxon Research Resource Centre (Zoological Institute RAS; [http://www.ckp-rf.ru/ckp/3038/?sphrase\\_id=8879024](http://www.ckp-rf.ru/ckp/3038/?sphrase_id=8879024)). This work was supported by budget funding of the Russian Academy of Sciences (projects AAAA-A19-119020690076-7 and AAAA-A18-118020890074-2).*

## **Мышечная организация прикрепительного органа *Lamellodiscus* (Monogenea: Diplectanidae)**

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При помощи окраски мышц флуоресцентно меченым фаллоидином и конфокальной микроскопии изучена организация мускулатуры гаптора у двух видов моногеней из семейства Diplectanidae, относящихся к роду *Lamellodiscus* (*L. fraternus* и *L. elegans*), и проведено ее сравнение с мускулатурой гаптора у ранее исследованных представителей диплектанид из рода *Diplectanum*. Исследование показывает возможность использования особенностей организации мускулатуры гаптора в систематике диплектанид.