Abstract. Each of the 12 vertices of the adenovirus virion is made of penton, the complex of two oligomeric proteins: a pentameric penton base anchored in the capsid and an antenna-like trimeric fiber extending outwards. Adenovirus penton plays an essential role in the infection of host cells because it is indispensable for virus attachment and internalization. The initial interactions of penton with the primary and secondary receptors are well described. In contrast with that, the role of the penton components downstream of the initial cell contact is not known. This work shows for the first time that two adenovirus structural proteins, fiber and base, are able to interact intimately with different classes of cellular targets. In the case of penton base, a protein responsible for virus internalization, the partners include three ubiquitin-protein ligases that are involved in protein turnover, cell cycle control and endocytosis. Another base protein partner, BAG3, is involved in controlling Hsc70 chaperone
activity. Virus attachment protein, fiber, interacts with many different partners, some of them involved in signal transduction and cell growth. Further work will illustrate the implications of these interactions for both the viral and cellular life cycles.

1 Introduction

Each of the 12 vertices of the adenovirus (Ad) virion is made of penton, the complex of two oligomeric proteins: a pentameric penton base anchored in the capsid and an antenna-like trimeric fiber extending outwards (Fig. 1). Penton plays an essential role in the infection of host cells. Ad infection begins with the attachment of a viral particle to the cell surface, by interaction of the distal globular region of the fiber (C-terminal head domain) with a primary cell receptor (PHILIPSON et al. 1968; DEVAUX et al. 1987; LOUIS et al. 1994; HENRY et al. 1994). The penton base protein is involved in virus internalization, through direct interaction of an ArgGlyAsp (RGD) sequence, probably localized in the flexible loop region of the penton base, with cell integrins (WICKHAM et al. 1993; SCHOEHN et al. 1966; STEWART et al. 1997).

Fig. 1. Schematic view of adenovirus penton