

LABORATORY OF CELL STRUCTURE



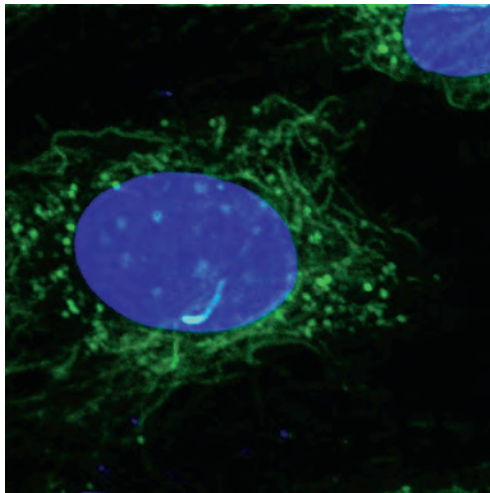
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Numerous proteins localized in the cilia are linked to human diseases such as PCD (primary ciliary dyskinesia) and PCKD (polycystic kidney disease). Primary cilia are defined as single cilia that grow out of one of the centrioles during interphase in otherwise unciliated animal cells. They show a 9+0 pattern losing a central pair of microtubule, contrasting with motile cilia with a well-known 9+2 pattern.

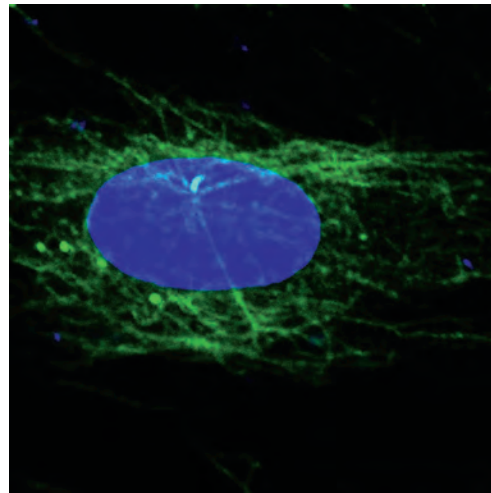
Such cilia can be seen in cultured cells such as 3T3, 3T6,

BHK21, NRK, MDCK. They are quite common centriolar specializations *in vivo* and *in vitro*. The incidence of primary cilia within a cell culture is related with the degree of confluency. Examination of confluent cell monolayers shows that the primary cilia within a single preparation of a given cell line varied considerably in length. In most cases, cell lines previously used were not cloned and the results remained obscure.

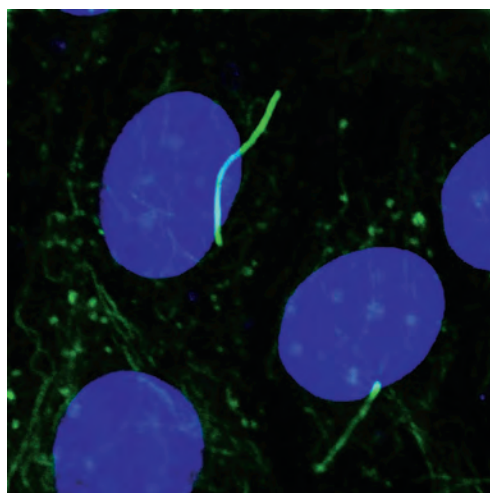
In this year, four cell lines originating from adult mouse kidney were established to study the proteomics of the primary cilia. They were named nibb-K1, K4, K5, and K8. The primary cilia of cells were observed by indirect immunofluorescence microscopy (Figure 1). In the cloned cell, each cell has a distinct length of cilium while K5 cell has the longest one among them (up to 10 μm).



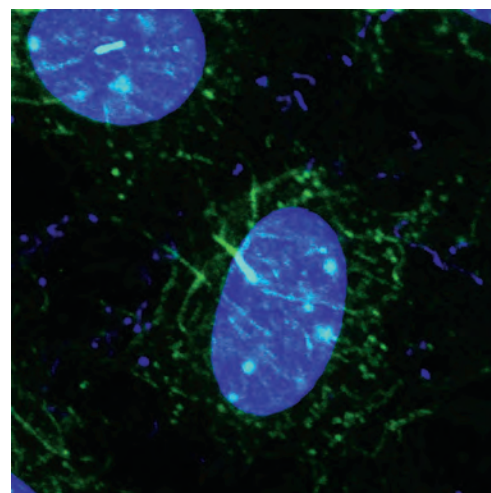
nibb-K1



nibb-K4



nibb-K5



nibb-K8

Figure 1. Typical primary cilia of four cell lines. Cells cultured on the cover slips were reacted with anti-acetylated tubulin antibody, followed by FITC-labeled secondary antibody. DNA was stained with DAPI.