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An Editorial Note on Current Controversies in Cholangiocarcinoma

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Editorial

The pathophysiology of the epithelial cells that line the biliary tree (cholangiocytes) has attracted a lot of attention over the past 30 years. New *in vitro* and *in vivo* experimental models are being created, and a large group of biliary tree illnesses (such as the This has been motivated by the need for effective pharmacotherapies for cholangiopathies, which have a variety of etiologies but all have the cholangiocyte as their target. interest. We here bring together a panel of worldwide experts to assess this development and pinpoint areas where research may be further developed in the upcoming. The ducts from the Canals of Hering in the liver to the duodenum are lined by cholangiocytes, providing a significant surface area over which basic physiological activities, such as secretion and absorption, may alter bile flow and composition. Cholangiocytes along the biliary tree exhibit morphological, biochemical, and functional variation. Cholangiocytes, for instance, are thought to be progenitor cells that take part in tissue regeneration and cell renewal near the Canals of Hering. The alkalinization and fluidization of bile are supported by a complex yet well-tuned network of receptors and transporters that are present in differentiated, bigger cholangiocytes [1].

A single primary cilium, which functions as an antenna-like sensory organelle and detects and transmits mechanical and biochemical signals from bile into the interior of the cell, is what distinguishes cholangiocytes from other cells. This cilium extends from the apical membrane into the bile duct lumen. The fact that cholangiocytes are the target of a heterogeneous group of diseases known as the cholangiopathies, diseases with diverse etiologies (for example, genetic, autoimmune-associated, infectious, neoplastic, drug-induced, and idiopathic, among others), further stimulates scientific interest in the biliary tree. These conditions are typically identified by decreased bile flow (cholestasis), which causes toxic bile acids to build up in the bile duct lumen and encourage the onset and progression of liver inflammation, fibrosis, hepatocellular destruction, and ultimately organ dysfunction [2,3].

The main characteristics of biliary tree formation, morphology, biology, and physiology, as well as the molecular processes of bile control and ciliary function in cholangiocytes, will be discussed in this BBA-Special Issue, which contains 37 original or review publications. Aside from that the progression of the injury's alterations is emphasised. In this regard, we go over the utilisation and creation of new and more precise In order to study the molecula pathways that control the pathophysiology of cholangiopathies, animal models of biliary disorders are required. includes extracellular vesicles , fibrosis , cell-to-cell interactions , and inflammation [With an eye toward novel opportunities for drug therapy, we also concentrate on the function of bile acids, nuclear receptors and ligands as well as the clinical effects of altered bile acid metabolism. Cholangiocytes can serve as antigen-presenting cells and engage in dynamic interactions with the immune system under normal circumstances. However, in some autoimmune disorders as primary biliary cholangitis (PBC), primary sclerosing cholangiotis (PSC), and IgG4-related biliary illness, these regulatory mechanisms in the framework of immunological tolerance change. Different genetic predispositions and epigenetic and molecular alterations have been associated with PBC, PSC, and IgG4 pathogenesis, and have provided important information for the design of new clinical strategies despite the fact that the etiologies of these conditions are still not entirely clear [4].

The heterogeneous group of malignant biliary illnesses known as cholangiocarcinoma (CCA) has a poor prognosis. Important discoveries in recent years have shed light on the processes that cause cholangiocytes to turn malignant, including genetic and epigenetic actions the interaction of malignant epithelia with the stroma around them, and the development of drug resistance in these cells all of which may point to novel therapeutic targets. To improve patient outcomes, significant work is still required to clarify present CCA disputes both at the basic and clinical levels, and to enhance early diagnosis and care. Germ-line mutations contribute to the development and progression of some biliary illnesses and determine how patients will respond to treatment. Understanding the molecular basis of these diseases' aetiology may open up new therapy options. Further research and preventive measures are needed for other cholangiopathies brought on by drug-induced bile duct injury or post-transplant developments [5].

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Conflict of Interest

The Author declares there is no conflict of interest associated with this manuscript.

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