Construction and Practice of Digital Pathology Cloud Platform

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= Abstract =

In 2022, the Pathology Department of the Second Hospital of Zhejiang University handled a total workload of 653,000 cases, serving as a support system for 22 collaborative hospitals across three campuses. However, the need for homogeneous management across multiple campuses and the constraints faced by doctors in terms of time and space present urgent issues to be addressed. Thus, it is crucial to contemplate how to construct the next generation of intelligent pathology.

With the support of KFBIO, we have successfully designed and implemented a digital pathology cloud platform that integrates clinical, consultation, teaching, and research functions into a unified system. In the clinical aspect, we have developed a clinical diagnosis platform and a remote consultation platform tailored for comprehensive and refined management within our hospital. By transcending the limitations of physical boundaries, our platform fosters collaboration among hospitals by facilitating remote digital pathology consultations and interdisciplinary cooperation. Furthermore, we are actively engaged in the development and utilization of online teaching resources, establishing a comprehensive evaluation system to enhance the training of resident physicians in multidimensional clinical pathology, thereby addressing the limitations of the existing evaluation framework. In the field of research, we place a strong emphasis on digital pathology and artificial intelligence. Our AI-assisted pathology slide quality evaluation system provides an efficient and automated mode for daily pathology slide quality control. Additionally, our developed central nervous system tumor methylation molecular classifier plays a crucial role in achieving precise molecular typing for central nervous system tumors. The establishment of our digital pathology cloud platform accelerates the integration and application of digital pathology, molecular pathology, and artificial intelligence, thereby promoting innovation and disciplinary development within the field of pathology.