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Sommario/riassunto	<p>The cardiac function relies on an intricate molecular and cellular three-dimensional (3d) architecture of a complex, dense and co-dependent cellular network. Structural alterations of the cardiac structure can affect its essential function and lead to severe dysfunction of the organ. Cardiovascular diseases are the main cause of death worldwide with a rising incidence. However, it is not possible to give a generalized answer how the heart is formed. Up to now, cardiac structure as well as physiologic and disease-related tissue alterations of the tissue are mainly investigated by established 2d imaging methods such as optical microscopy or electron microscopy. This work presents a multiscale and multimodal X-ray imaging approach, which allows to probe the heart structure from the scale of entire intact murine hearts to the molecular organisation of the sarcomer structure. While the molecular structure of the actomyosin complex is probed by scanning X-ray diffraction, the 3d arrangement of the cellular network is investigated by propagation-based X-ray phase-contrast tomography. In this context, the concept of 3d virtual histology of cardiac tissue by X-ray phase-contrast tomography using laboratory sources as well as highly coherent synchrotron radiation is being further developed.</p>