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It's a living breathing moving thing: advances in functional X-ray imaging of respiratory system health for Cystic Fibrosis.

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The absence of non-invasive measurements of detailed lung and airway function has greatly limited respiratory system health and disease management in medicine. Recent developments in synchrotron phase-contrast imaging in live animal models has enabled significant advances in measurement of physiological stability and change airways and lungs. Beginning at SPring-8, and paralleled later at the IMBL, our team has progressively advanced the animal care and outcome-measurement technologies to enable us to ask and answer novel and detailed questions about the physiology of the respiratory system, related to the genetic disease of cystic fibrosis (CF). Using examples from free-breathing or ventilated animals - from mice to pigs - new techniques, key findings, and future directions will be presented that reveal a steady advance in respiratory system functional imaging capabilities.

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