

Χαρακτηριστικά:

- Provides a practical approach to explore systems biology and computational techniques
- Examines the integration of molecular dynamics with omics data for deeper biological insights
- Demonstrates applications of structural biology for drug design and the treatment of various diseases
- Highlights advanced network analysis and AI applications in structural biology
- Offers real-world examples of docking, pharmacophore modeling, and molecular simulations

Περιεχόμενα:

Section I – Foundations: computational and conceptual

1. Unraveling protein function with structural biology approaches
2. Bioinformatics tools for protein modeling in neurodegenerative diseases
3. Bioinformatics tools for protein modeling in cancer
4. Unraveling protein folding and structural dynamics

Section II – Methodologies: experimental and integrative techniques

5. Cryo-electron microscopy in membrane protein structural biology
6. Computational and artificial intelligence methodologies for big data analytics in structural biology
7. Big data enabled discovery in bioinformatics and structural biology
8. AI and machine learning in structural biology
9. Integrating structural and omics data for drug discovery

Section III – Applications

10. Applications of structural biology in drug discovery
11. Structural biology approaches in vaccine development
12. Structural biology in antiviral drug design
13. Structural bioinformatics in personalized medicine
14. Structural biology in understanding bacterial resistance
15. Structural biology approaches in neurodegeneration and aging
16. Structural biology of protein misfolding and aggregation: from disease to therapeutic innovations
17. Integrated structural approaches in immunotherapy

Section IV – Translational biology

18. Structural and systems biology in cancer therapy
19. Protein structural biology in precision medicine and clinical translation
20. Future trends in structural biology