**Teaching unit 3**

**Signaling pathways in the cell**

**Questions**

1. Principles of signal transduction in the cell
2. The role of signaling pathways in the development of tumors
3. Principles of signal transduction from receptors with tyrosine kinase activity
4. Ras protein
5. The role of Ras protein in the development of tumors
6. Ras/Raf/MAPK signaling pathway
7. The role of different components of the Ras/Raf/MAPK signaling pathway in tumorigenesis
8. PI3K/Akt signaling pathway
9. mTOR kinase
10. The role of different components of the PI3K/Akt signaling pathway in tumorigenesis
11. JAK/STAT signaling pathway. The role of the JAK/STAT signaling pathway in tumorigenesis
12. Wnt signaling pathway. The role of the Wnt signaling pathway in tumorigenesis
13. Hedgehog signaling pathway. The role of the Hedgehog signaling pathway in tumorigenesis
14. Mechanism of activation of transcription factor NF-κB. The role of the transcription factor NF-κB in oncogenesis