Quaternary Amine-based Helical Polypeptide Primes Anticancer Immunity and Delivers Therapeutic Genes

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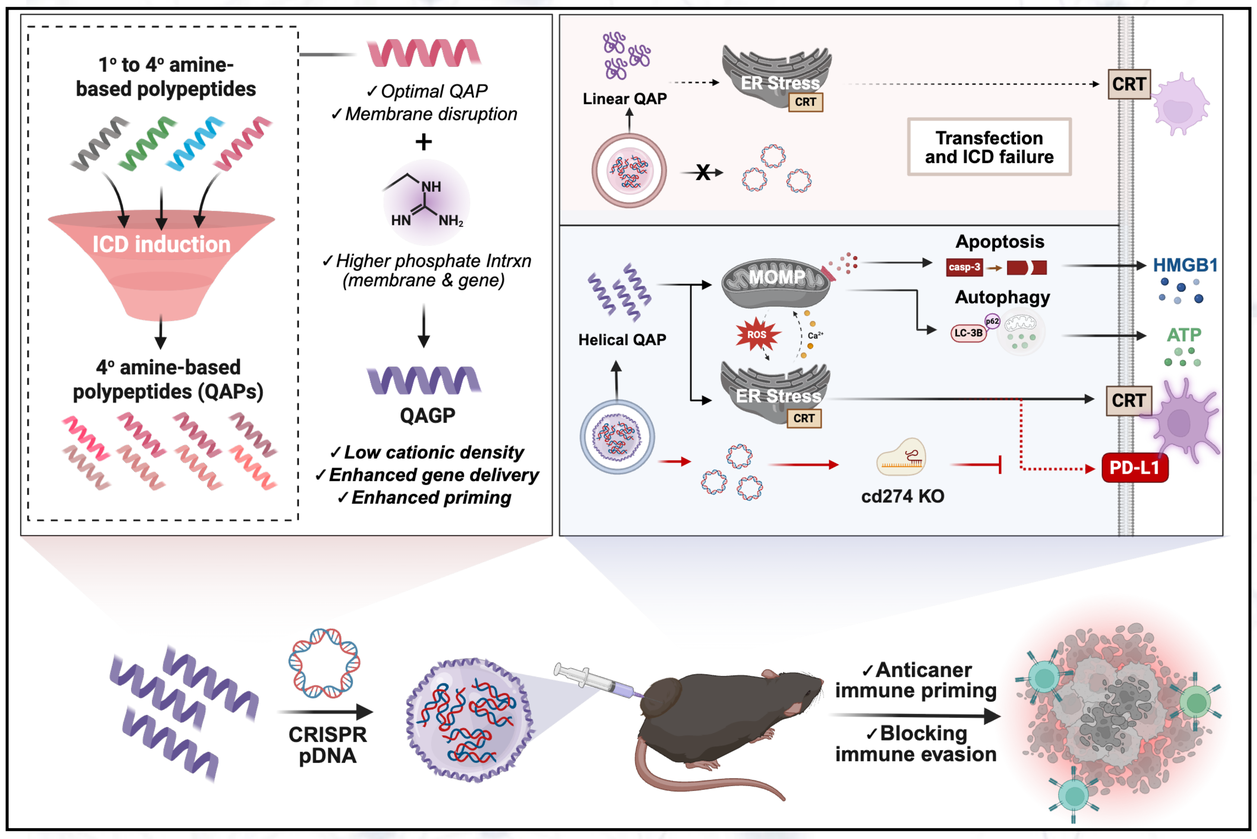
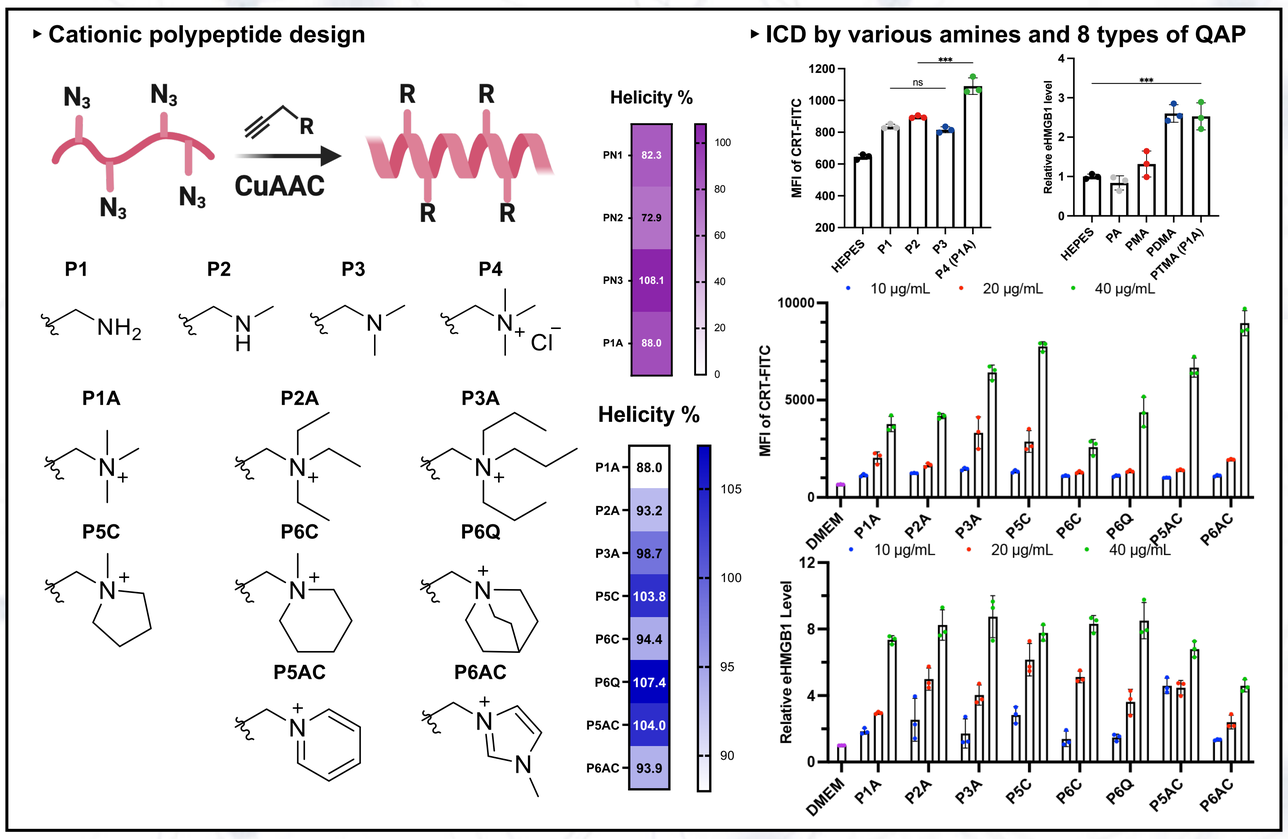
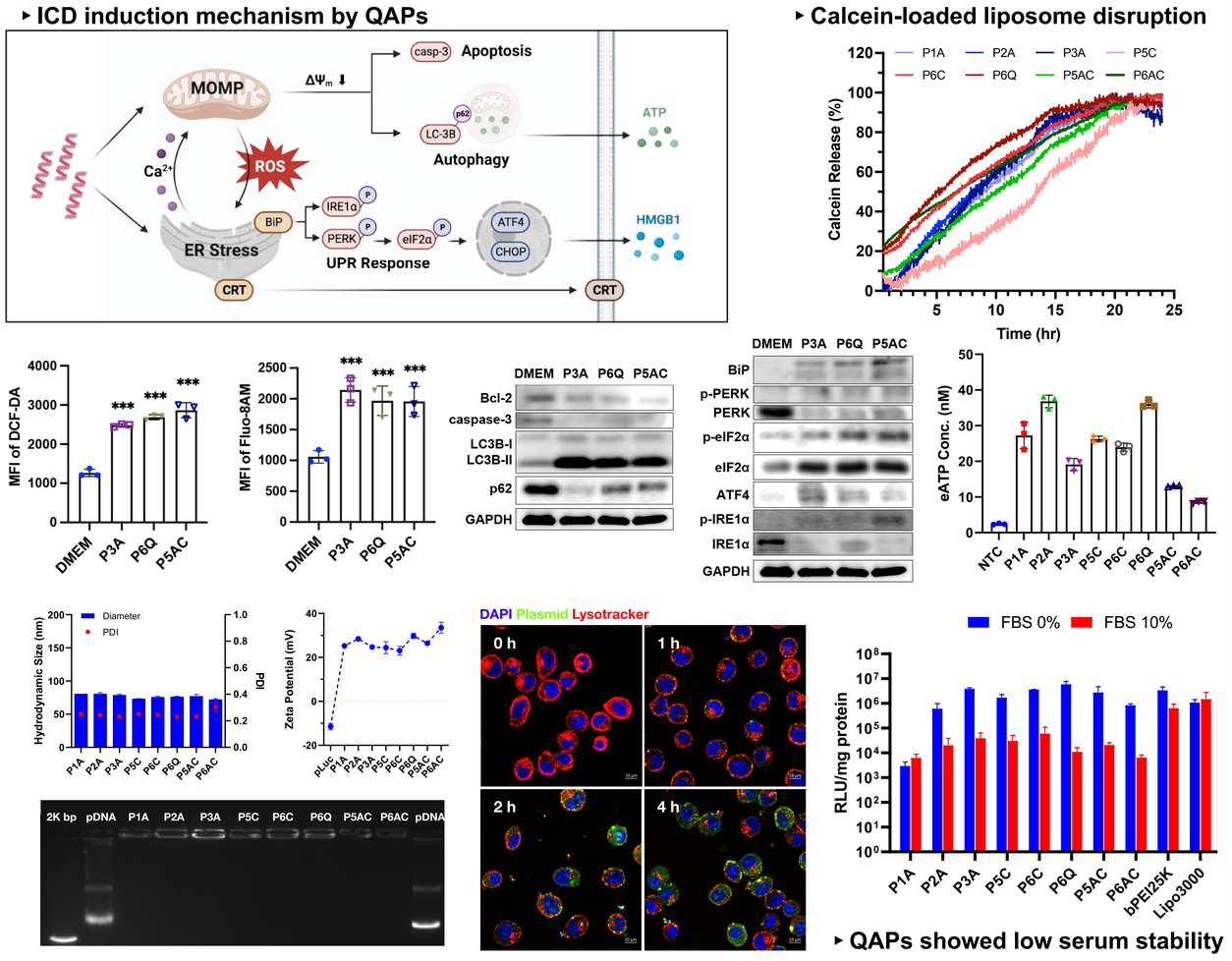
SCHEMATIC RESEARCH SUMMARY



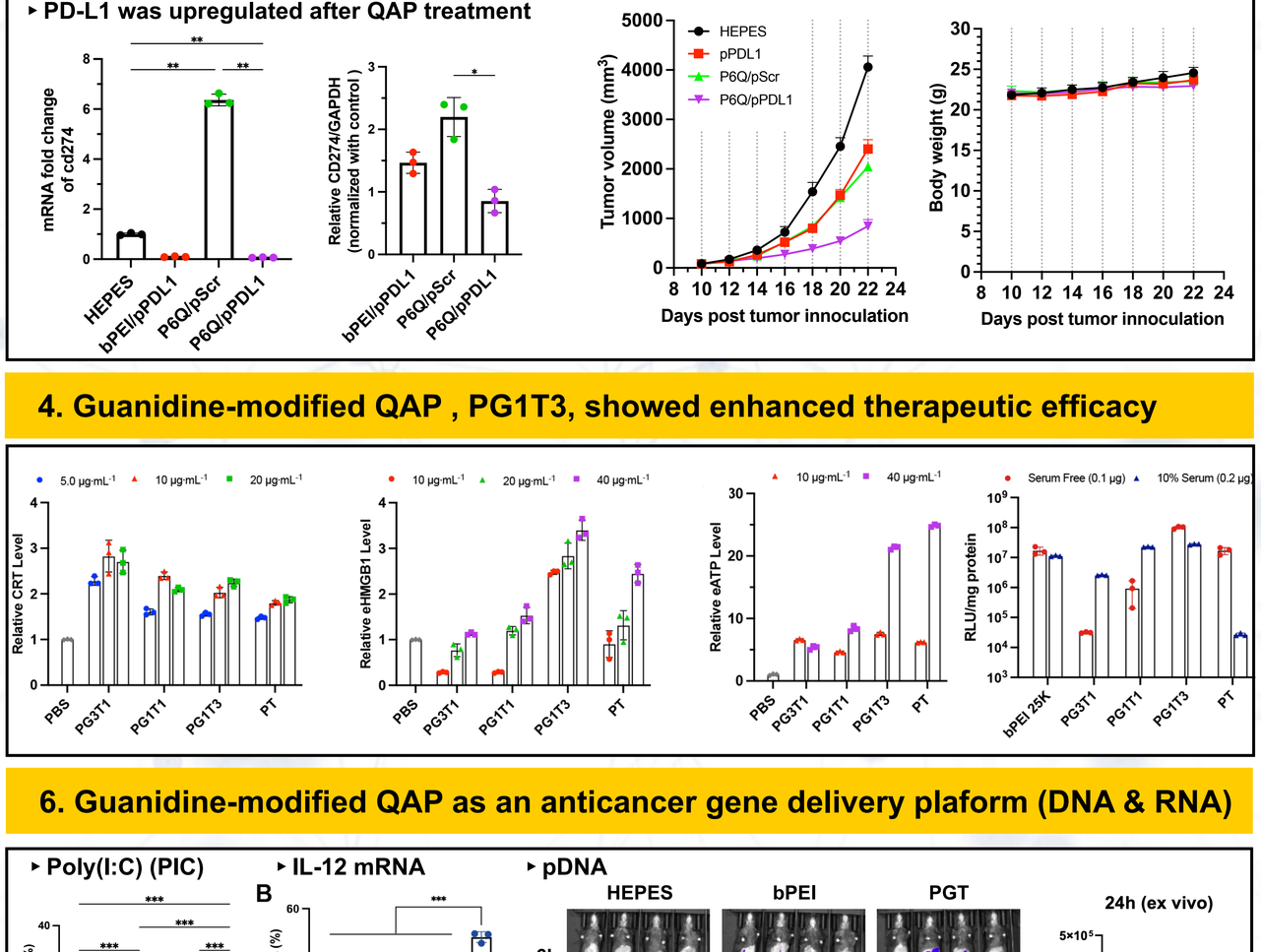
1. Quaternary amine-based polypeptide(QAP) induces immunogenic cell death(ICD)



2. Membrane disruption by QAP causes organelle stress and enable gene delivery



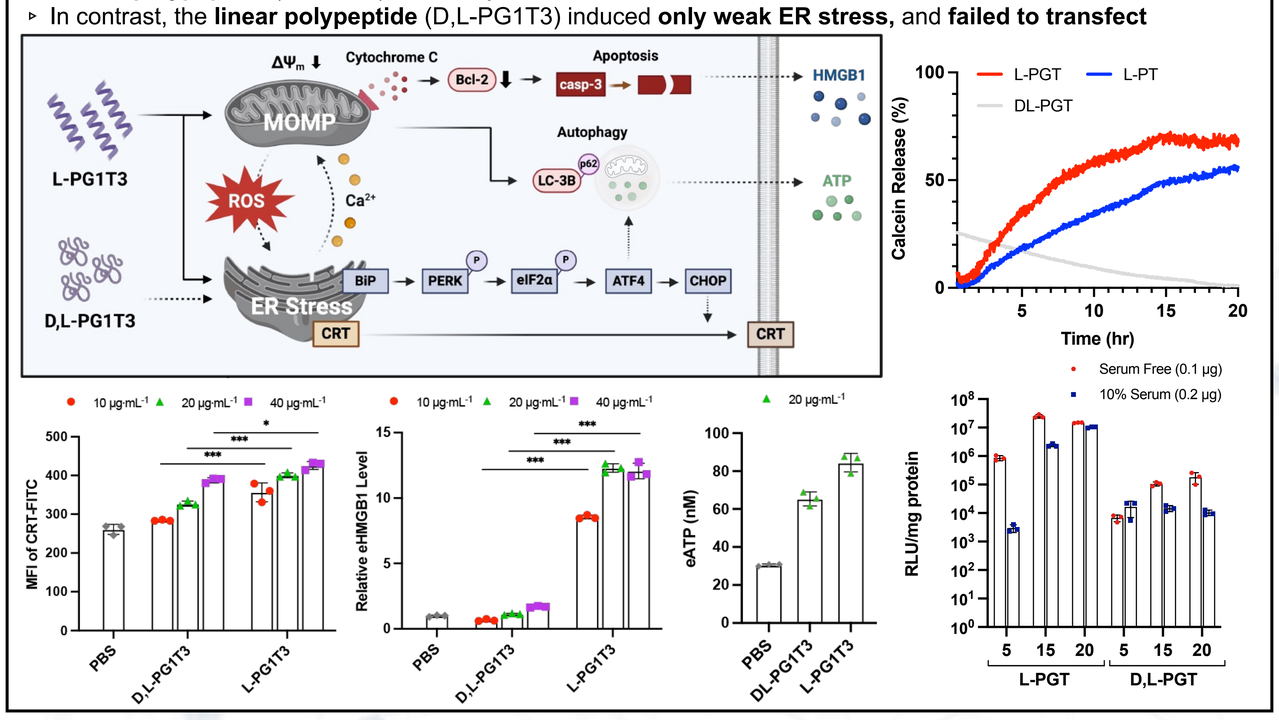
3. QAP polyplex delivers therapeutic genes (pDNA) for cancer immunotherapy



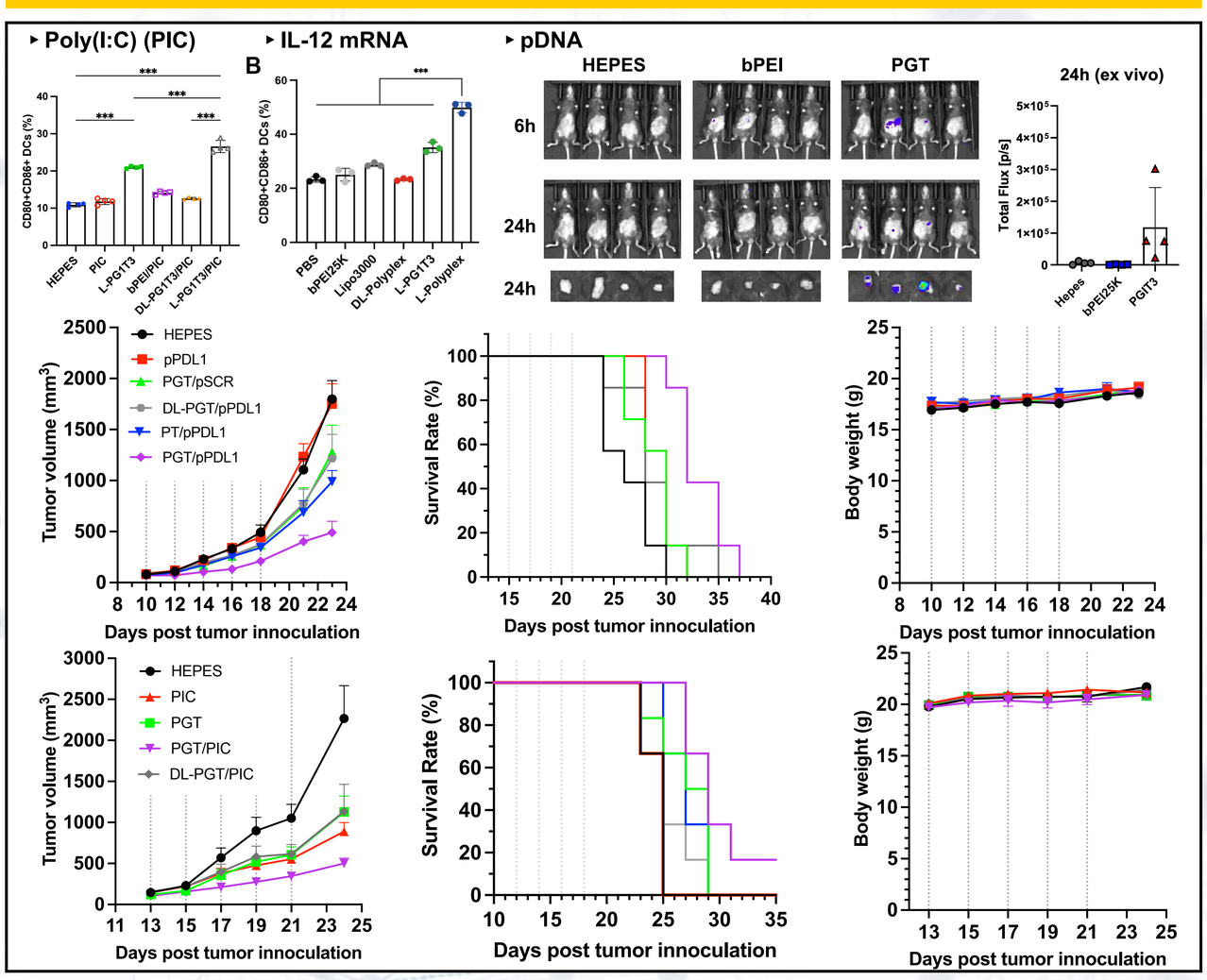
4. Guanidine-modified QAP , PG1T3, showed enhanced therapeutic efficacy

5. ICD induction depends on the secondary structure of QAP

- **Helical polypeptide** (L-PG1T3) effectively stimulated **both MOMP and ER stress,** and **succeed to transfect**
- In contrast, the **linear polypeptide** (D,L-PG1T3) induced **only weak ER stress,** and **failed to transfect**



6. Guanidine-modified QAP as an anticancer gene delivery plaform (DNA & RNA)



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