EGFRvIII peptide nanovaccine with chitosan and apoferritin carrier system: characterization and *in vitro* cytokine response

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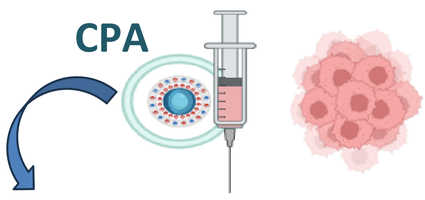
INTRODUCTION

Nanovaccine for treatment of cancer that expresses EGFRvIII: [1]



[2]

EGFRvIII (P) + Chitosan (C) + Apoferritin (A)

Antigen — Adjuvant System

Aim:

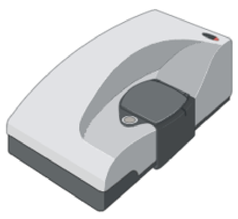
- Characterize chitosan-peptide-apoferritin nanovaccine (CPA)
- Obtain initial evidence of its immunogenicity

METHODOLOGY

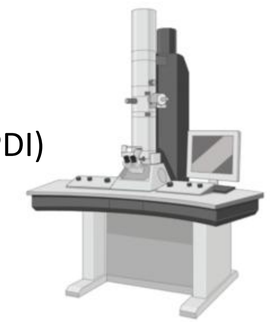
CPA Preparation

CPA Characterization

- ✓ Particle size and morphology
- ✓ Polydispersity index (PDI)
- ✓ Zeta Potential (ZP)



Dynamic Light Scattering (DLS)



Transmission Electron Microscopy (TEM)

In vitro immunogenic potential by IL-6 production (ELISA)

Dendritic Cell (DC)

→ **IL-6**

RESULTS

Table 1: Results of DLS

	SIZE (nm)	PDI	ZP (mV)
CPA	272.4 ± 48.2	0.394 ± 0.085	13.7 ± 7.5
A	55.8 ± 34.4	0.660 ± 0.212	-14.6 ± 8.0

Figure 1: TEM of CPA

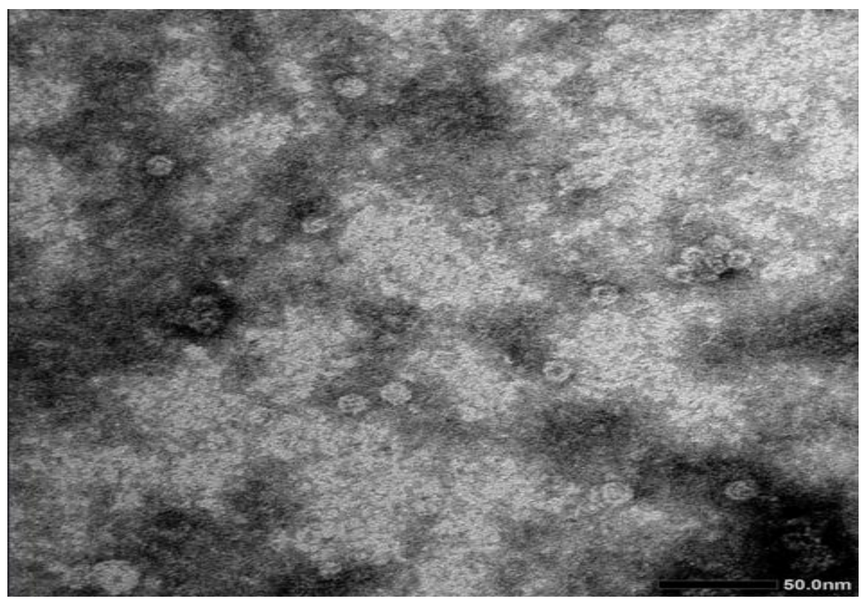


Table 2: Results of IL-6 production by dendritic cells

Samples	IL-6 production by DC
A	●
CPA	●
P	●
C	●

● Presence of IL-6 ● Absence of IL-6

CONCLUSION

- The CPA nanovaccine showed increased particle size and changes in surface charge compared to apoferritin
- TEM of CPA revealed spherical morphologies
- IL-6 assays indicated that CPA and apoferritin stimulate cytokine production, unlike the isolated EGFRvIII, highlighting the role of adjuvant system

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References: 1- TASDOGAN, Alpaslan et al. Nature Reviews Disease Primers. 2025:1-2. 2- ZACCARIOTTO, de Camargo et al. ACS Nano. 2025: 16204-16207