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OPTIMIZED p53 PEPTIDES WITH MITOCHONDRIAL TARGETING SIGNALS

THERAPEUTICS

Peptides with full length or partial p53 and a mitochondrial targeting signal to trigger apoptosis in tumor cells, particularly for breast and ovarian cancer.

TECHNOLOGY TYPE

Biologics
Oncology
Gene Therapy, Silencing, &
Editing

STAGE OF DEVELOPMENT

- Proof of concept demonstrated through *in vivo* testing in mice.

- Ongoing testing in higher primates.

Nationalized PCT Pending in the United States and Europe

Targeting P53 and its DNA-Binding Domain
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Aaron Duffy

Technology Manager
aaron.duffy@tvc.utah.edu
801-585-1377

TECHNOLOGY SUMMARY

p53 is a transcription factor that also stimulates apoptotic signaling through death receptors and the mitochondria. Over half of all cancer express p53 mutations and recombinant p53 is often introduced into cancer cells for treatment. Mutated p53, however, interacts with the introduced p53 rendering it ineffective at suppressing tumors.

p53 peptides with mitochondrial targeting signals (p53-MTS) can be introduced into tumor cells, which does not interact with mutant p53. The mitochondrial p53 works as a monomer with pro- and anti-apoptotic proteins at the mitochondrial outer membrane, causing a rapid apoptotic response. The p53-MTS and DNA binding domain constructs are active in cancer cells independent of their p53 status.

FEATURES AND BENEFITS

- Triggers a quicker apoptotic response than recombinant p53 by bypassing cell cycle arrest and DNA repair.
- Avoids dominant-negative effect.
- Expands use of p53 to treat patients with mutated, mislocalized, or inactive p53.

RECENT PUBLICATIONS

Matissek, K.J., Okal, A., Mossalam, M., Lim, C.S. (2014). Delivery of a monomeric p53 subdomain with mitochondrial targeting signals from pro-apoptotic Bak or Bax. *Pharmaceutical Research*. 31(9): 2503–2515. doi: [10.1007/s11095-014-1346-y](https://doi.org/10.1007/s11095-014-1346-y)

INVENTOR PROFILE

Carol S. Lim, Ph.D., [Professor – Pharmaceutics & Pharmaceutical Chemistry](#)
Karina J. Matissek, [Graduate Student - Lim Lab](#)
Mohanad A. Mossalam, Ph.D., [Postdoctoral Fellow - Lim Lab](#)

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