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[54] **PEPTIDE-ENHANCED CATIONIC LIPID TRANSFECTIONS**

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[58] **Field of Search** 428/402.2; 435/172.3, 435/235.1, 320.1, 458; 536/23.1

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[57] **ABSTRACT**

The present invention provides compositions useful for transfecting eukaryotic cells comprising nucleic acid complexes with peptides, wherein the peptide is optionally covalently coupled to a nucleic acid-binding group, and cationic lipids or dendrimers as transfection agents. The invention also provides transfection compositions in which a peptide is covalently linked to the transfection agent (lipid, cationic lipid or dendrimer). Inclusion of peptides or modified-peptides in transfection compositions or covalent attachment of peptides to transfection agents results in enhanced transfection efficiency. Methods for the preparation of transfection compositions and methods of using these transfection compositions as intracellular delivery agents and extracellular targeting agents are also disclosed.

95 Claims, 12 Drawing Sheets