ANTIVIRAL PROTEIN MX MODULATES INTRACELLULAR LOCALIZATION OF NODAVIRUS COAT PROTEIN IN GROUPER

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<INTRODUCTION>
Overexpression of grouper Mx (myxovirus-resistance protein) was proclaimed as a negative regulator of nodavirus activity through direct interaction, such that grouper Mx induction expression might bind and perturb intracellular localization of coat protein (CP). Deletion analysis of grouper Mx indicated that coat protein of nodavirus could bind to the effector domain of Mx. Thus, we demonstrate here that Mx interacts with viral CP in vivo by using analysis of fluorescence resonance energy transfer (FRET). Mutation in Mx, including an N-terminal leucine zipper region previous shown to be sufficient for interaction with CP in vitro, diminished FRET in vivo. These findings demonstrated a key role of grouper Mx in cellular resistance to nodavirus infection.

>RESULTS<

1. Identification of the grouper Mx domains responsible for antiviral activity in vitro

2. The dsRNA poly [I:C] is capable of inducing the antiviral activity

3. Leucine zipper (LZ) region of Mx is required for protein Interaction

4. Interaction between Mx and coat protein in vivo

>CONCLUSIONS<

1. Identification of the grouper Mx domains responsible for antiviral activity in vitro.
2. The dsRNA poly [I:C] is capable of inducing the antiviral activity.
3. Leucine zipper (LZ) region of Mx is required for protein Interaction.
4. Interaction between Mx and coat protein in vivo.