CLAIMS

1. A method for reducing double stranded RNA (dsRNA) formation during *in vitro* transcription reaction comprising performing said *in vitro* transcription reaction in the presence of at least 35 mM of magnesium.

2. A method according to claim 1, wherein said *in vitro* transcription reaction is performed in the presence of pyrophosphatase.

3. A method according to any one of claims 1 to 2, wherein said *in vitro* transcription reaction is terminated by addition of a metal chelator, such as EDTA.

4. A method according to any one of claims 1 to 3, wherein the concentration of magnesium is between 35 mM and 150 mM, preferably between 40 mM and 100 mM, more preferably between 45 mM and 75 mM, most preferably about 55 mM.

5. A method according to any one of claims 2 to 4, wherein the concentration of pyrophosphatases is between 0.01 U/ml and 40 U/ml, preferably between 0.1 U/ml and 20 U/ml, more preferably between 1 U/ml and 10 U/ml, most preferably about 5 U/ml.

6. A method according to any one of claim 3 to 5, wherein the concentration of said metal chelator is between 10 and 50 mM, preferably between 20 and 30 mM, more preferably about 24 mM.

7. A method according to any one of claims 1 to 6, wherein magnesium is in a form selected from the group comprising magnesium chloride ($MgCl_2$), and magnesium acetate ($MgOAc_2$).

8. A method according to any one of claims 1 to 7, wherein the double stranded RNA in said *in vitro* transcription reaction further comprises one or more of the following: a 5' CAP, modified nucleoside(s), and/or a poly(A) tail.

9. Use of at least 35 mM magnesium in an *in vitro* transcription reaction to reduce the formation of double stranded RNA (dsRNA) during said *in vitro* transcription reaction.