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Physical Change in Cytoplasmic Messenger Ribonucleoproteins in Cells Treated with Inhibitors of mRNA Transcription

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| · | VSV infection by itself could bring about the same effect. | Tris-hvdrochloride. pH 7.4. containing 1 mM CaCl ₂ , and |
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| | Since both actinomycin D and VSV infection are known to inhibit nuclear DNA-dependent RNA transcription. it raised | digestion with RNase was carried out with 25 µg of pancreat- ic RNase A (Worthington Diagnostics) and 400 U of micro- |
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| | the possibility that the increased cross-linking of the 38K | coccal nuclease (P-L Biochemicals) per ml for 60 min at |
| | protein with mRNA occurs as a result of arrest of transcrip- | <u>37°C. To inhibit possible traces of protease, the pancreatic</u> |
| | tion. This report presents studies which examine the rela- | RNase was preboiled, and aprotinin (0.5%), pepstatin A (1 |
| | tionship between inhibitors of nuclear transcription and the | ug/ml). and leupeptin (1 աց/ml) (Sigma) were included in the |
| | mRNPs in the cytoplasm | direction mixture. After the PNace direction, the proteins |
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became_cross-linked to polv(A)⁺ mRNA as a consequence

| of exposure of intact cells to UV light in untreated cells an in cells treated with several different inhibitors of nuclea transcription were examined. The poly(A)* mRNP fraction prepared from cells treated with actionnovin Dat accounter tions which inhibit RNA polymerase II transcription, con- tained a new 38K protein which was not cross-linked to a new 38K protein which was not cross-linked to the several different several different several different was not constrained a new 38K protein which was not cross-linked to the several different several different several different was not soccific to actionmycin D since it also occurred with othe inhibitors of transcription (Fig. 1 and 2). These includes camptothecin, an inhibitor of rRNA and hnRNA synthesis (22, 56); 5,6-dichloro-1-8-p-ribofuranosylbenzimidazol | changes in mRNPs were also seen. This effect was not specific to actionwein D since it also occurred with other inhibitors of transcription (Fig. 1 and 2). These included camptothecin. an inhibitor of rRNA and hnRNA synthesis (22, 56): 5.6-dichloro-1-8-D-ribofuranosylbenzimidazole | B. V | |
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| 4A reflect. To examine whether the in | teraction of 38K with | | |
| mRNA is reversible so that when the 38K dissociates from mRNA, camp | inhibitor is removed othecin, rather than | | |
| actinomycin D. was used. Unlike actin | omvcin D. the inhibi | | |
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| | extent that it is known are believed to have different | LITERATURE CITED |
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| | mechanisms and sites of action. Actinomycin D is known to | 1 Baer. R. W., and R. D. Kornherg, 1983. The protein responsible |
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| £4.4 | 47, 55). Camptothecin is not as well studied, but it also ap- | protein. J. Cell. Biol. 96:717–721. |
| M1 | <u>nears to intercalate into DNA (15)</u> DRR_unlike actinomycin | 2. Baltimore, D., and A. S. Huang. 1970. Interaction of HeLa cell |
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