Über den Einfluß von Fremdelektrolyt auf die Bildung von Isopolymolybdaten

Remarks about the Formation of Na-Isopolymolybdates in Aqueous Solutions, Influenced by the Presence of NaCl

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Im Anschluß an die obige Arbeit [1] sei hier eine Beobachtung mitgeteilt, die den Einfluß eines Fremdelektrolyten auf die Bildung von Isopolymolybdaten betrifft.

Bei den Eichmessungen über den Verbrauch von Protonen durch Na_2MoO_4 in 6 gew.-proz. NaCl-Lösungen wurden auch reine wäßrige Molybdat-Lösungen auf ihren $H^{\oplus}$-Verbrauch hin analysiert. In beiden Fällen entsprach die zugegebene Menge HCl jeweils einer Acidifikation von 2. Dabei zeigten die Lösungen ohne NaCl-Zusatz eine deutliche Konzentrationsabhängigkeit des $H^{\oplus}$-Verbrauches, während die Lösungen mit Natriumchlorid einen konstanten Verbrauch aufwiesen.

System $HCl-Na_2MoO_4-H_2O$

Konzentration Na_2MO_4 [Mol l^{-1}]	$\Delta H^{\oplus}/Mo$ [Mol Mol^{-1}] Meßreihe 1	$\Delta H^{\oplus}/Mo$ [Mol Mol^{-1}] Meßreihe 2
3,805 10^{-3}	1,21	1,19
7,689	1,40	1,41
9,524	1,45	1,47
1,173 10^{-2}	1,51	1,52
1,535		1,55

System $HCl-NaCl-Na_2MoO_4-H_2O$

Konzentration Na_2MO_4 [Mol l^{-1}]	$\Delta H^{\oplus}/Mo$ [Mol Mol^{-1}] Meßreihe 1	$\Delta H^{\oplus}/Mo$ [Mol Mol^{-1}] Meßreihe 2
7,460 10^{-3}	1,52	1,52
1,507 10^{-2}	1,52	1,51
1,867	1,52	1,52
2,299	1,52	1,52

Das zugefügte NaCl scheint demnach eine stabilisierende Wirkung auf die Polymolybdationen auszuüben.

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[1] H. P. STOCK, Z. Naturforsch. **26 b**, — — [1971].

Further Investigations on Transcription in *Limnaea* (Mollusc)

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In a previous note [1] we have shown that ion-agar electrophoresis is a suitable technique for investigating transcription patterns in *Limnaea*. Specifically, it was reported that incorporation in 4S RNA is maximal in the uncleaved egg and the percentage of this fraction decreases continuously with development. Recently KNOWLAND [2] published data on the changing proportions of 4S RNA incourse of development in *Xenopus* from blastula to tadpole. The pattern shows a distinct rise and fall and is quite different from the continuous decrease in *Limnaea*.

The present report shows that there is a precise timing in 4S RNA transcription in the uncleaved egg of *Limnaea*. A general picture of transcription of other RNA fractions is also being presented. The techniques employed were exactly the same as before [1]. Plating on nutrient medium of the crushed egg mass further showed a negligible bacterial population of *Limnaea* eggs, which proved that the results are not due to bacterial contamination. Freshly laid eggs cleave after 2 to 3 hours. Control pieces from the egg masses for experiment were kept under observation and so the timings of their cleavage could be determined.

Table 1 shows that there is a very marked decrease in incorporation in the 4S fraction during the last part of the uncleaved stage.

Treatment with P^{32}	Experiment Nos.	Percentage of label in 4S RNA
For 1 hour during 2 hours	1	33
before cleavage to 1 hour	2	39
before cleavage	3	43
For the last 1 hour	4	13
before cleavage	5	13
For the last 35 mins.	6	5
before cleavage	7	10

Table 1. The pattern of incorporation into 4S RNA before cleavage.

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[1] R. L. BRAHMACHARY, P. K. TAPASWI, and D. GHOSAL, Z. Naturforsch. **25 b**, 1318 [1970].

[2] J. S. KNOWLAND, Biochim. biophysica Acta [Amsterdam] **209**, 416 [1970].

Thus transcription or CCA labeling of 4S RNA, highest in the uncleaved egg, sharply decreases before cleaving.

Table 2 indicates the details on the newly synthesized RNA during the last stage of the uncleaved egg (the last 35 minutes before cleavage) of experiment no. 7 given in Table 1.

Nature of RNA	[cpm]
pre 23S	6
23S	55
23−16S	26
16S	116
16− 4S	27
4S	27

Table 2. Proportion of newly synthesized RNA fractions immediately before the first cleavage. Background has been deducted from cpm.

Table 3 sums up the results of electrophoretic separation of P^{32} labelled newly synthesized RNA in course of development. In this table the cpm for 16S and 16−4S have been combined. As shown earlier [1, 3] newly synthesized *Limnaea* RNA as evident through labeling exhibits fractions of approximately 23S and 16S. These are certainly not due to contaminating bacteria as indirect evidence as well as actual counting prove. On the other hand, interpretation of density gradient profiles are not unequivocal as will be evident on comparing three authors [4−6]. KAFIANI [6] provides results on newly synthesized loach RNA fractions which, unlike those of sea-urchin and *Xenopus*, are certainly not 28 and 18S and one of which seems to be 16S.

With these cautionary remarks one can provisionally conclude from table 3 that rRNA like fractions are markedly evident even in the uncleaved eggs of *Limmaea*. WOODLAND and GRAHAM [7] reported rRNA in very early morula of mouse and so far this has been the most precoccious example of rRNA synthesis. Even if this rRNA like fraction in *Limnaea* are nondescript and heterogeneous RNA, the preponderance of these fractions is significantly different from *Xenopus* uncleaved and early morula [4].

Stages	Experiment Nos.	bands	[cpm]
Uncleaved	1	23S	80
		16S+	130
		4S	105
	2	23S	78
		16S+	272
		4S	228
	3	23S	136
		16S+	484
		4S	480
Early Morula	4	23S	331
		16S+	252
		4S	162
Late Morula	5	23S	2149
		16S+	1775
		4S	856
Trochophore	6	23S	1068
		16S+	2325
		4S	651
	7	23S	532
		16S+	1797
		4S	335
	8	23S	397
		16S+	885
		4S	—
Veliger	9	23S	2644
		16S+	3282
		4S	152

Table 3. The different fractions of newly synthesized RNA. '16S+' denotes 16S plus 16−4S.

Some of the data in Table 3 confirm the earlier results obtained with density gradient [3] and it is now seen that in morula transcription in the 23S region is much more than in 16S region.

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[3] R. L. BRAHMACHARY, K. P. BANERJEE, and T. K. BASU, Exp. Cell Res. **51**, 177 [1968].

[4] H. DENIS, in: Advances in Morphogenesis, edited by M. ABERCROMBIE and J. BRACHET, Academic Press, New York and London 1968.

[5] G. GIUDICE and V. MUTOLO, Biochim. biophysica Acta [Amsterdam] **138**, 276 [1967].

[6] C. KAFIANI, in: Advances in Morphogenesis, edited by M. ABERCROMBIE and J. BRACHET, Academic Press, New York and London 1970.

[7] H. R. WOODLAND and C. F. GRAHAM, Nature [London] **221**, 327 [1969].