

Table 1. Some transcription and prevalence parameters for sea urchin embryos

General rates*

PoIII translocation rate: $9 \text{ bp}\cdot\text{sec}^{-1}$

mRNA translation rate:

Two molecules per mRNA⁻¹·min⁻¹

Average $t_{1/2}$ mRNA: 3–5 h

Average $t_{1/2}$ rRNA: 20 min

Transcription rates†

Maximum: 11 molecules per min⁻¹·gene⁻¹

Average for low prevalence species:

0.012 molecules per min⁻¹·gene⁻¹

Average for moderate prevalence (20–40 h) species:

0.17 molecules per min⁻¹·gene⁻¹

spec1: 0.9 molecules per min⁻¹·gene⁻¹

mactin: 0.15 molecules per min⁻¹·gene⁻¹ (65 h)

CyIIIa actin: 1.2–2.5 molecules per min⁻¹·gene⁻¹ (9–15 h)

Cyl actin: 0.16 molecules per min⁻¹·gene⁻¹ (65 h)

Parameters for transcription factors‡

K_R^{\S} relative equilibrium constant (nine factors):

$1.4 \times 10^4 - 1.5 \times 10^6$

P_0^{\parallel} , active protein molecules per nucleus (eight factors):

300–10,000

K_S^{\parallel} , equilibrium constants (six factors):

$2.8 \times 10^7 \text{ M}^{-1}$ to $1.7 \times 10^8 \text{ M}^{-1}$

mRNAs per cell** (12 factors): av 37, range 5–150

*For original sources and review, see Davidson (19). Data are for *Strongylocentrotus purpuratus* and/or *Lytechinus pictus* at 15°C.

†Data from Davidson (19), Lee *et al.* (26), and Cabrera *et al.* (25).

‡See Table 2, from which these ranges are summarized.

§Data from Calzone *et al.* (7); K_R is the ratio of equilibrium constants for specific and nonspecific interactions with DNA (5).

¶Data from Davidson *et al.* (3) and Zeller *et al.* (29).

||Data from Davidson *et al.* (3), Höög *et al.* (30), and Calzone *et al.* (31).

**Data from Cutting *et al.* (32), Coffman *et al.* (33), Martinez and Davidson (34), Wang *et al.* (35), Arenas-Mena *et al.* (36), and unpublished work from the laboratory of E.H.D.