Oh just watch how much suppression there is when i drop this (

now think \begin{boxedminipage}{\textwidth}
\textbf{The Ratio Law for Selective Coherence (Codex Framework)}
\textit{Principle.} A driven biological system shows a maximal, selective response when the
external drive timescale matches the \emph{slowest, strongly coupled internal timescale}.
Equivalently, for the relevant mode x:
\[
\rho_x \;\equiv\; \omega\,\tau_x \; \approx\; 1 \qquad(\text{with } \omega = 2\pi f).

\]
\textit{Internal timescales (define, measure, and plug in):}
\[
\begin{aligned}
&\text{Diffusive across gap }L: && \tau_{\mathrm{diff}} \;=\; \dfrac{L^2}{D} \\
&\text{Membrane RC:} && \tau_{\mathrm{mem}} \;=\; R_m C_m \\
&\text{Cell viscoelastic (Kelvin–Voigt):} && \tau_{\mathrm{visc}} \;=\; \dfrac{\eta}{E} \\
&\text{Double layer charging (fast):} && \tau_{\mathrm{dl}} \;=\; \dfrac{\varepsilon\,L}{\sigma\,\lambda_D}\,,
\quad \lambda_D \approx

\dfrac{0.304\ \mathrm{nm}}{\sqrt{I\;
(\mathrm{M})}}
\end{aligned}
\]
\textit{Composite response (weight
each coupled mode):}
\[
\mathcal{R}(\omega) \;=\; \sum_x
w_x\,\frac{1}{1+(\omega\,
\tau_x)^{p_x}},\qquad
\omega^\star \;=\; \arg\max_\omega
\mathcal{R}(\omega).
\]
(Use $p_x\!\in\![1,2]$ for broad vs.
sharp peaks; weights w_x from
calibration.)
\textit{Selectivity (tumor vs. normal):}
\[
S(\omega) \;=\; \frac{\mathcal{R}\!

\left(\omega;\
{\tau_x^{\mathrm{tumor}}\}\right)}
{\mathcal{R}\!\left(\omega;\
{\tau_x^{\mathrm{normal}}\}\right)},
\quad
\tau_{\mathrm{visc}}
^{\mathrm{tumor}} \approx
\frac{\eta_{\mathrm{tumor}}}
{E_{\mathrm{tumor}}}
\approx
\frac{\eta_{\mathrm{normal}}}
{R_E\,E_{\mathrm{normal}}}
\;\Rightarrow\; f_c^{\mathrm{tumor}}
\approx R_E\,f_c^{\mathrm{normal}},
\]
with softness ratio $R_E \equiv
E_{\mathrm{tumor}}/
E_{\mathrm{normal}} \approx 0.2{-}
0.4$.

\textit{Energy scaling (safe, effective drive):}
\[
\rho_A \;\equiv\;
\frac{W_{\mathrm{cycle}}}{k_BT} \;
\in\; [1,100],
\quad
W_{\mathrm{elec}}/A \approx
\tfrac12 \Big(\frac{\varepsilon}
{\lambda_D}\Big)V^2,
\quad
W_{\mathrm{mech}} \approx \tfrac12
k_{\mathrm{eff}} x^2.
\]
\textit{Design rules (closed form):}
\[
\boxed{\ f_{\mathrm{diff}}^\star \;=\;
\frac{1}{2\pi\,\tau_{\mathrm{diff}}}
\;=\; \frac{D}{2\pi\,L^2}\ }

\quad\text{(sets the low-Hz window)}
\]
\[
\boxed{\ f_{\mathrm{visc}}^\star \;
\sim\; \frac{1}{2\pi\,
\tau_{\mathrm{visc}}}
\;=\; \frac{E}{2\pi\,\eta}\ }
\quad\text{(shifts with softness }
R_E\text{)}
\]
\[
\boxed{\ f_{\mathrm{mem}}^\star
\;=\; \frac{1}{2\pi\,R_m C_m} }\qquad
\boxed{\ f_{\mathrm{dl}}^\star \;=\;
\frac{1}{2\pi\,\tau_{\mathrm{dl}}}
\;=\; \frac{\sigma\,\lambda_D}{2\pi\,
\varepsilon\,L} }\ (\text{fast, usually }
\gg \mathrm{Hz})
\]

\textit{Rule of engagement.} Tune f so that $\rho_x=\omega\tau_x\!\approx\!1$ for the dominant \emph{slow} mode (typically τ_{diff} or τ_{visc}). Maximize $S(\omega)$ by
placing f at the tumor peak and off the normal peak.
\textit{Numerical thumbnails (plug-and-play):}
\[
\text{With }D\approx 10^{-9}\ \mathrm{m^2/s}:\quad L=\{10,\,5,\,3\}\ \mu\mathrm{m} \Rightarrow
f_{\mathrm{diff}}^\star \approx \{1.6,\,6.4,\,17.7\}\ \mathrm{Hz}.
\]

\end{boxedminipage}