r0 = [0.135; 0.1; 0.11]; % population reproduction rates, per hour

CSD = 1e5; % total initial cells

K = 3e5; % Michaelis-Menten coefficient, fmole/ml

ExtTh = 0.1; % population extinction threshold

DilTh = 1e8; % coculture dilution threshold

tau0 = 0;

tauf = 250; % in hours

dtau = 0.01; % in hours, cell growth update and uptake timescale

at = 0.1; % avg. consumption values (fmole per cell); alpha\_ij: population i, resource j

bt = 0.04; % avg. production rates (fmole per cell per hour); beta\_ij: population i, resource j

Ng = 50; % number of generations for preconditioning (before fitting)

Nr = round(Ng/(log(DilTh/CSD)/log(2)))+1; % number of rounds of propagation

rint = [0; 0.11; 0.1]; % Nc\*Nm matrix of interaction coefficients

[Nc Nm] = size(rint);

KMM = K\*[1 0.5 1]; % Michaelis-Menten coefficients, fmole/ml

rp0 = 1/Nc\*ones(1,Nc);

%% Parameters

R = [0 1 1];

P = [1 0 0];

% interaction matrix

alpha = at\*[0 0 1]; % consumption rates

beta = bt\*[1 0 0]; % mediator release rates

A = (R.\*alpha)';

B = (P.\*beta)';