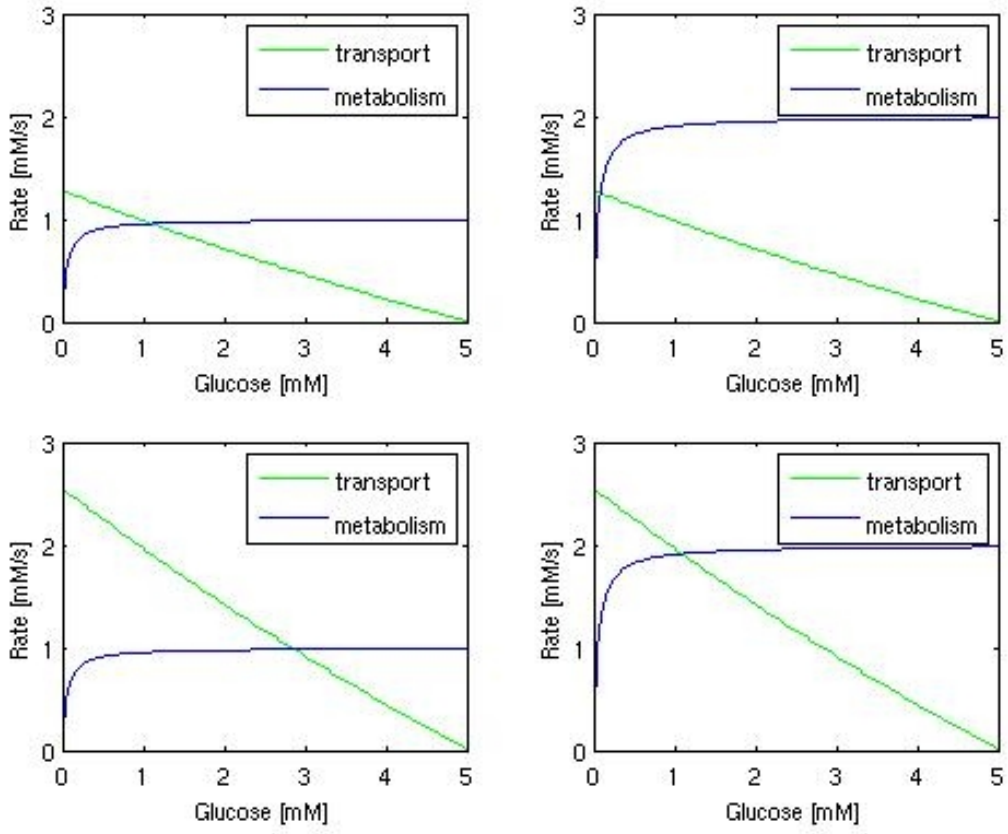
Barros Graphes et code matlab




```
function glucose_transport_metabolism

clear all; clc;
close all;

figure('Name','Glucose transport and metabolism'); hold on; box on; grid on;
figure_name = 'Glucose_Km_005_vmax_1';

Gn = 0:0.05:5; % neuronal glucose

%- TRANSPORT ------------------------------------------------------------%

    % Parameters
        %- Glucose transport
        Ke = 0.1
        Kn = 0.5
        Vmaxin = 1.3
        Vmaxout = (Vmaxin*Kn)./(Ke)
        Ge = 5
    % Michaelis-Menten reversible
        vt = (Vmaxin*(Ge/Ke)-Vmaxout*(Gn/Kn))./(1+(Ge/Ke)+(Gn/Kn))
```

```
    % Graphical representation
    plot(Gn,vt,'g-')
%-------------------------------------------------------------------------%

%- METABOLISM ------------------------------------------------------------%

    %- Parameters
        %- Glucose phosphorylation
        Km = 0.05; % [mM]
        vmaxm= 1;

    %- Michaelis-Menten kinetics
        vm = vmaxm*Gn./(Km+Gn);

    %- Graphical representation
        plot(Gn,vm,'b-');


%-------------------------------------------------------------------------%

xlabel('Glucose [mM]');
ylabel('Rate [mM/s]');
legend('transport','metabolism');



%- GRAPHIQUES
figure;

vVmaxT=[1.3,1.3,2.6,2.6]
vVmaxM=[1,2,1,2]

for i=1:4
    Vmaxin2=vVmaxT(i)
    Vmaxm2=vVmaxM(i)
    Vmaxout2 = (Vmaxin2*Kn)./(Ke)
    vt = (Vmaxin2*(Ge/Ke)-Vmaxout2*(Gn/Kn))./(1+(Ge/Ke)+(Gn/Kn))
    vm = Vmaxm2*Gn./(Km+Gn);
    subplot(2,2,i);
    plot(Gn,vt,'g-');
    hold on;
    plot(Gn,vm,'b-');
    xlabel('Glucose [mM]');
    ylim([0 3]);
    ylabel('Rate [mM/s]');
    legend('transport','metabolism');
end
saveas(gcf,['figures/',figure_name])
```