

# VU Research Portal

## Control and regulation of glycolysis in *Trypanosoma brucei*

Bakker, B.M.

1998

### **document version**

Publisher's PDF, also known as Version of record

[Link to publication in VU Research Portal](#)

### **citation for published version (APA)**

Bakker, B. M. (1998). *Control and regulation of glycolysis in Trypanosoma brucei*.

### **General rights**

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal ?

### **Take down policy**

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

### **E-mail address:**

[vuresearchportal.ub@vu.nl](mailto:vuresearchportal.ub@vu.nl)

# Contents

List of abbreviations	4
<b>Chapter 1</b> General Introduction	7
<b>Chapter 2</b> Glycolysis in bloodstream form <i>Trypanosoma brucei</i> can be understood in terms of the kinetics of the glycolytic enzymes	27
<b>Chapter 3</b> What controls glycolysis in bloodstream form <i>Trypanosoma brucei</i> ?	53
<b>Chapter 4</b> The kinetics of glucose transport in <i>Trypanosoma brucei</i>	77
<b>Chapter 5</b> Glucose transport controls the glycolytic flux in <i>Trypanosoma brucei</i> for 30 to 50 %	93
<b>Chapter 6</b> Compartmentation protects trypanosomes from the dangerous design of glycolysis	109
<b>Chapter 7</b> General Discussion	121
References	129
Summary	139
Samenvatting	143
Samenvatting voor familie en vrienden	147
Dankwoord	150

# List of abbreviations

AK	adenylate kinase
ALD	fructose-1,6-bisphosphate aldolase
1,3-BPGA	1,3-bisphosphoglycerate
$c$	cytosolic
$C_i^J$	flux control coefficient of enzyme $i$
DHAP	dihydroxyacetone phosphate
$\varepsilon_{X_j}^i$	elasticity coefficient of enzyme $i$ for metabolite $j$
ENO	enolase
Fru-1,6-BP	fructose 1,6-bisphosphate
Fru-6-P	fructose 6-phosphate
$g$	glycosomal
$\Gamma$	ratio of product and substrate concentrations
Glc	glucose
GA-3-P	glyceraldehyde 3-phosphate
GAPDH	glyceraldehyde-3-phosphate dehydrogenase
GDH	glycerol-3-phosphate dehydrogenase
GK	glycerol kinase
Gly-3-P	glycerol 3-phosphate
Glc-6-P	glucose 6-phosphate
GPO	glycerol-3-phosphate oxidase
HK	hexokinase
$J$	steady-state flux
$K_{eq}$	equilibrium constant
$k_{cat}$	turnover rate
$K_m$	Michaelis constant
$K_i$	inhibition constant
PEP	phospho <i>enol</i> pyruvate
2-PGA	2-phosphoglycerate
3-PGA	3-phosphoglycerate
PGI	glucosephosphate isomerase

PFK	phosphofructokinase
PGK	phosphoglycerate kinase
PGM	phosphoglycerate mutase
PYK	pyruvate kinase
TIM	triosephosphate isomerase
<i>tot</i>	total
V	volume
<i>v</i>	enzyme rate