## Aerobic metabolism

1 At pH = 7, Eo' for O2|H20 is + 0.816 and for gluconate|glucose it is - 0.44. Can dissolved oxygen oxidize sugar water?

reduced 2RCHO 40	oxidized	reduced
-0.44 V	0.011V	0.816 V
axidized 2H	2MBH	oxidized

- A Yes
- B No
- C Further information needed
- 2 At pH = 7, Eo' for O2|H20 is + 0.816 and for MB+|MBH is + 0.011. Can dissolved oxygen oxidize reduced methylene blue, MBH?



- A Yes
- B No
- C More information needed

3 At pH = 7, Eo' for

MB+|MBH is + 0.011 and for gluconate|glucose it is - 0.44.. Can oxidized methylene blue, MB+, oxidize glucose?

reduced	oxidized	reduced
ZRCHO	2MB"	20H
-0.44 V	0.011V	0.816 V
2RCOO-	2MBH	0,
oxidized 2	H <sub>2</sub> O reduced	oxidized

- A Yes
- B No
- C More information needed

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## Aerobic metabolism

4 Based on answers to the previous questions, is MB+|MBH required for dissolved oxygen to oxidize glucose?

reduced	oxidized	reduced
ZRCHO 40	ZMB'	20H-
-0.44 V	0.011 V	0.816 V
2RCOO-	2MBH /	0,
oxidized 2H	o reduced	oxidized

- A Yes
- B No
- C More information needed.
- 5 In fact, MB+|MBH \*is\* required for dissolved oxygen to oxidize glucose. Why?

reduced	oxidized	reduced
2RCHO	2MB"	20H
-0.44V	0.011 V	0.816 V
2RCOO	2MBH	0,
oxidized 2H	o reduced	oxidized

