

UNIVERSITY OF OSLO

Faculty of Mathematics and Natural Sciences

Exam in: **MBV2010 Molecular Biology**

Day of exam: **June 5, 2008**

Exam hours: **9:00-12:00 (3 hours)**

This examination paper consists of **1** page.

Appendices: **None**

Permitted materials: **None**

Make sure that your copy of this examination paper is complete before answering.

Numbers in brackets indicate the maximum number of points for each question. The maximum number of points for the entire exam is 100.

1. In which molecular processes are the following proteins involved?

DnaC
Cohesins
Photolyase
UvrC
MutS
Dicer
DNA ligase IV
DNA polymerase δ
TRAP
GreA (10)

2. a) List all the proteins involved in translation in prokaryotes and explain briefly (in 1-2 sentences) their functions. (15)
b) Describe how polypeptides can be generally processed after synthesis. (15)

3. a) Name at least 2 **physical mutagens** and describe their effect on DNA. (5)
b) Explain how DNA damage caused by the physical mutagens named in 3.a) is repaired. (5)
c) Describe the **short patch nucleotide excision repair system** of *E. coli*. (10)

4. a) Explain the reasons for the diversity of immunoglobulin genes. (20)
b) What is **diauxie**? Describe its molecular basis in an example. (20)