

**Professor Yannis D. Clonis**  
**Laboratory of Enzyme Technology (Director)**  
**Department of Biotechnology**  
**Agricultural University of Athens**

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**Degrees:**

*Doctor of Philosophy* (Ph.D.), University of Southampton, England, 1981.

*Master of Science* (M.Sc.), University of Warwick, England, 1976.

*B.Sc./Ptychio* (Biology), University of Athens, Greece, 1975.

**Positions:**

1997- : Professor, Department of Biotechnology, Agricultural University of Athens.

1990-1997: Associate Professor, Department of Agric. Biotechnology, Agricultural University of Athens.

1988-1990: Assistant Professor, Department of Chemistry, University of Patras, Patras, Greece.

1983-1988: Senior Research Associate, Institute of Biotechnology, University of Cambridge, UK.

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**Teaching activities:**

*Molecular Enzymology*

*Enzyme Technology*

*Analytical Biotechnology*

**Research interests:**

*Biomimetic affinity ligands, drug & pro-drug design and study.* Development of affinity ligands, drugs & pro-drugs, employing rational and structure-guided combinatorial approaches. Study of enzyme inhibitors with pharmaceutical and medicinal interest. Ligand synthesis & immobilization on solid phases, and study of affinity adsorbents for purification of high-value enzymes.

*Downstream processing.* Development of effective purification processes based on novel affinity adsorbents for production of high-value enzymes (e.g. therapeutic, biosimilars). Purification protocols amenable to scale-up (industrial) protein purification.

*Immobilised enzymes and biosensors.* Development of biocatalytic solid materials suitable for bioassays. Construction of optical biosensors for application to the determination of metabolites, drugs and agrochemicals.

### Other positions & activities (past or present):

- Member of the editorial board and referee of scientific journals.
- National representative/expert on Biotechnology at the European Commission.
- Delegate at the 'Downstream Processing Task Group' of the European Federation of Biotechnology.
- Vice president of the Department of Biotechnology, Agricultural University of Athens.
- Member of the Hellenic Society of Biochemistry & Molecular Biology, Greece.
- Member of the Hellenic Biological Society, Greece.

### Research projects:

- **EUREKA (1990-1992):** DEVELOPMENT AND STUDY OF DYES AND DYE-ADSORBENTS FOR ENZYME PURIFICATION.
- **STRIDE-HELLAS (1992-1994):** DEVELOPMENT OF A NATIONAL LABORATORY NETWORK FOR THE APPLIED RESEARCH AND PRODUCTION OF BIOACTIVE PEPTIDES.
- **PENED 1991:** DEVELOPMENT OF NEW METHODS FOR THE DETERMINATION OF DIAGNOSTIC SUBSTANCES USING OPTICAL BIOSENSORS: APPLICATION TO THE DETERMINATION OF PHOSPHATIDYLCHOLINE (LECITHIN) AND CHOLINE.
- **PENED 1995:** MOLECULAR MODELING USING COMPUTERS FOR THE DESIGN OF NEW BIOMIMETIC MATERIALS AND APPLICATION TO THE RAPID PRODUCTION OF PURE ANALYTICAL AND DIAGNOSTIC ENZYMES.
- **PENED 1999:** REDESIGN OF GLUTATHIONE TRANSFERASE (GST) USING PROTEIN ENGINEERING AND APPLICATION TO THE CONSTRUCTION OF AN OPTICAL BIOSENSOR FOR DETERMINATION OF PESTICIDES AND THE PRODUCTION OF TRANSGENIC PLANTS.
- **EPAN-ESPRO (2005-2007):** PHARMACOGENOMICS AND PROTEIN ENGINEERING OF GLUTATHIONE TRANSFERASE (GST) FOR STUDYING CANCER RESISTANCE TO CIS-PLATIN FOR TARGETED CHEMOTHERAPY AGAINST SOLID TUMORS.
- **PYTHAGORAS-EEOP (2006-2008):** RATIONAL AND COMBINATORIAL REDESIGN OF GLUTATHIONE TRANSFERASE (GST) FOR THE CONSTRUCTION OF AN OPTICAL BIOSENSOR FOR THE DETERMINATION OF ENVIRONMENTAL POLLUTANTS.
- **THALES (2012-2015):** GLUTATHIONE TRANSFERASES (GSTs): MOLECULAR TOOLS FOR DEVELOPMENT OF BASIC AND APPLIED RESEARCH IN THE AREAS OF RED AND GREEN BIOTECHNOLOGY (WP responsible).
- **ARISTEIA-II (2014-2015):** DESIGN OF CATALYTIC BIODEGRADABLE TOXIC INSECTICIDES BY RECONSTITUTION OF ACHAEA ENZYMES AND DIRECTED EVOLUTION (WP responsible).

### Publications

#### Research Papers

**1.** Affinity chromatography of immobilized nucleotides. The synthesis, specificity and applications of immobilized inosine 5'-monophosphate.

**Y.D. CLONIS, C.R. LOWE.**

*Eur. J. Biochem.*, 110 (1980) 279-288.

**2.** Triazine dyes: a new class of affinity labels for nucleotide-dependent Enzymes.

**Y.D. CLONIS, C.R. LOWE.**

*Biochem. J.*, 191 (1980) 247-251.

- 3.** Affinity Chromatography on immobilized triazine dyes. Studies on the interaction with multinucleotide-dependent Enzymes.  
**Y.D. CLONIS, C.R. LOWE.**  
*Biochim. Biophys. Acta*, 659 (1981) 86-98.
- 4.** The interaction of yeast hexokinase with Procion green H-4G.  
**Y.D. CLONIS, M. GOLDFINCH, C.R. LOWE.**  
*Biochem. J.*, 197 (1981) 203-211.
- 5.** Affinity chromatography on immobilized triazine dyes. Post-immobilization chemical modification of triazine dyes.  
**Y.D. CLONIS.**  
*J. Chromatogr.*, 236 (1982) 69-80.
- 6.** Affinity chromatography on immobilized nucleotides. Studies on the interaction of *E. coli* IMP dehydrogenase with immobilized nucleotides.  
**Y.D. CLONIS, M.J. GOLDFINCH.**  
*J. Mol. Catalysis*, 16 (1982) 1-9.
- 7.** Process-scale high performance liquid affinity chromatography.  
**Y.D. CLONIS, K. JONES, C.R. LOWE.**  
*J. Chromatogr.*, 363 (1986) 31-36.
- 8.** Novel cationic triazine dyes in protein purification.  
**Y.D. CLONIS, C.V. STEAD, C.R. LOWE.**  
*Biotech. Bioeng.*, 30 (1987) 621-627.
- 9.** High performance liquid chromatography for the purification of restriction endonucleases. Application to Ban II, Sac I and Sph I.  
**V. BOURIOTIS, A. ZAFEIROPOULOS, Y.D. CLONIS.**  
*Analyt. Biochem.*, 160 (1987) 127-134.
- 10.** Dye-ligand chromatography for the resolution and purification of restriction endonucleases.  
**G. VLATAKIS, G. SKARPELIS, I. STRATIDAKI, V. BOURIOTIS, Y.D. CLONIS.**  
*Applied Biochem. Biotech.*, 15 (1987) 201-212.
- 11.** Matrix evaluation for preparative high performance affinity chromatography.  
**Y.D. CLONIS.**  
*J. Chromatogr.*, 407 (1987) 179-188.
- 12.** Preparative affinity precipitation of L-lactate dehydrogenase.  
**J. PEARSON, Y.D. CLONIS, C.R. LOWE.**  
*J. Biotechnol.*, 11 (1989) 267-274.
- 13.** Purification of the glycoprotein allergen Ag7 from Mugwort pollen by concanavalin A affinity chromatography.  
**B. NILSEN, B. PAULSEN, Y.D. CLONIS, K.S. MELLBYE.**  
*J. Biotechnol.*, 16 (1990) 305-316.

- 14.** Monosized adsorbents for high performance affinity chromatography. Application to the purification of calf intestinal alkaline phosphatase and human urine urokinase.  
**Y.D. CLONIS, C.R. LOWE.**  
*J. Chromatogr.*, 540 (1991) 103-111.
- 15.** Downstream processing of diagnostic enzymes. Optimised protocols for the simultaneous separation and purification of lactate dehydrogenase and pyruvate kinase from rabbit muscle.  
**G. TSAMADIS, N. PAPAGEORGAKOPOULOU, Y.D. CLONIS.**  
*Bioprocess Eng.*, 7 (1992) 213-218.
- 16.** Simultaneous separation and purification of pyruvate kinase and lactate dehydrogenase by dye-ligand chromatography.  
**T. MAKRIYANNIS and Y.D. CLONIS.**  
*Process Biochem.*, 28 (1993) 179-185.
- 17.** The interaction of *Candida boidinii* formate dehydrogenase with a new family of chimeric biomimetic dye-ligands.  
**N. LABROU, Y.D. CLONIS.**  
*Arch. Biochem. Biophys.*, 316 (1995) 169-178.
- 18.** Biomimetic dye-ligands for oxalate-recognizing enzymes. Studies with oxalate oxidase and oxalate decarboxylase.  
**N. LABROU, Y.D. CLONIS.**  
*J. Biotechnol.*, 40 (1995) 59-70.
- 19.** Oxaloacetate decarboxylase: on the mode of interaction with substrate-mimetic affinity ligands.  
**N. LABROU, Y.D. CLONIS.**  
*Arch. Biochem. Biophys.*, 321 (1995) 61-70.
- 20.** Biomimetic-dye affinity adsorbents for enzyme purification. Application to the one-step purification of *Candida boidinii* formate dehydrogenase.  
**N.E. LABROU, A. KARAGOUNI, Y.D. CLONIS.**  
*Biotech. Bioeng.*, 48 (1995) 278-288.
- 21.** Biomimetic-dye affinity chromatography for the purification of bovine heart lactate dehydrogenase.  
**N.E. LABROU, Y.D. CLONIS**  
*J. Chromatogr.*, 718 (1995) 35-44.
- 22.** Biomimetic-dye affinity chromatography for the purification of mitochondrial L-malate dehydrogenase from bovine heart.  
**N.E. LABROU, Y.D. CLONIS.**  
*J. Biotechnol.*, 45 (1996) 185-194.
- 23.** Dye affinity labeling of bovine heart mitochondrial malate dehydrogenase and study of the NADH-binding site.  
**N.E. LABROU, E. ELIOPOULOS, Y.D. CLONIS.**  
*Biochem. J.*, 315 (1996) 687-693.

- 24.** Molecular modelling for the design of chimeric biomimetic dye-ligands and their interaction with bovine heart mitochondrial malate dehydrogenase.  
**N.E. LABROU, E. ELIOPOULOS, Y.D. CLONIS**  
*Biochem. J.*, 315 (1996) 695-703.
- 25.** Design and study of peptide-ligand affinity adsorbents. Application to the case of trypsin purification from bovine pancreas.  
**T. MAKRIYANNIS, Y.D. CLONIS**  
*Biotech. Bioeng.*, 53 (1997) 49-57.
- 26.** Simultaneous purification of L-malate dehydrogenase and L-Lactate dehydrogenase from bovine heart by biomimetic-dye affinity chromatography.  
**N.E. LABROU, Y.D. CLONIS.**  
*Bioprocess Eng.*, 16 (1996) 157-161.
- 27.** L-Malate dehydrogenase from *Pseudomonas studzeri*: purification and characterization.  
**N.E. LABROU, Y.D. CLONIS.**  
*Arch. Biochem. Biophys.*, 337 (1997) 103-114.
- 28.** Oxalate oxidase from barley roots: purification to homogeneity and study of some molecular, catalytic and binding properties.  
**V. KOTSIRA, Y.D. CLONIS.**  
*Arch. Biochem. Biophys.*, 340 (1997) 239-249.
- 29.** Purification of alcohol dehydrogenase from four genotypes of the olive fruit fly *Bactrocera (Dacus) oleae*.  
**V.E. MAZI, N. COSMIDIS, Y.D. CLONIS, M. LOUKAS**  
*Biotechnol. Progr.*, 14 (1998) 294-299.
- 30.** Biochemical differences between products of the ADH locus in olive fruit fly.  
**V.E. MAZI, N. COSMIDIS, M. LOUKAS, Y.D. CLONIS, E. ZOUROS.**  
*Biochem. Genet.*, 36 (1998) 259-269.
- 31.** Chemical modification of barley root oxalate oxidase shows the presence of a lysine, a carboxylate, and disulfides, essential for enzyme activity.  
**V. KOTSIRA, Y.D. CLONIS.**  
*Arch. Biochem. Biophys.*, 356 (1998) 117-126.
- 32.** Colorimetric assay for lecithin using two co-immobilized enzymes and an indicator dye conjugate.  
**V. KOTSIRA, Y.D. CLONIS.**  
*J. Agric. Food Chem.*, 46 (1998) 3389-3394.
- 33.** Molecular modeling for the design of a biomimetic chimeric ligand. Application to the purification of bovine heart L-lactate dehydrogenase.  
**N.E. LABROU, E. ELIOPOULOS, Y.D. CLONIS.**  
*Biotech. Bioengin.*, 63 (1999) 322-332.

- 34.** Oxaloacetate decarboxylase from *Pseudomonas studzeri*: purification and characterization.  
**N.E. LABROU, Y.D. CLONIS.**  
*Arch. Biochem. Biophys.*, 365 (1999) 17-24.
- 35.** Growth of *Candida boidinii* in a methanol-limited continuous culture and the formation of methanol-degrading enzymes.  
**G. AGGELIS, S. FAKAS, S. MELISSIS, Y.D. CLONIS.**  
*J. Biotechnol.*, 72 (1999) 127-139.
- 36.** Characterization of the NAD<sup>+</sup> binding site of *Candida boidinii* formate dehydrogenase by affinity labeling and site directed mutagenesis.  
**N.E. LABROU, D.J. RIGDEN, Y.D. CLONIS.**  
*Eur. J. Biochem.*, 267 (2000) 6657-6664.
- 37.** A new family of glutathionyl-biomimetic ligands for affinity chromatography of glutathione-recognizing enzymes.  
**S.C. MELISSIS, D. J. RIGDEN, Y. D. CLONIS.**  
*J. Chromatogr. A*, 917 (2001) 29-43.
- 38.** Functional and structural role of the glutathione binding residues in maize glutathione s-transferase I.  
**N. LABROU, L.V. MELLO, Y. D. CLONIS.**  
*Biochem. J.*, 358 (2001) 101-110.
- 39.** The conserved ASN49 of maize glutathione S-transferase I modulates substrate binding, catalysis and intersubunit communication.  
**N. LABROU, L.V. MELLO, Y. D. CLONIS.**  
*Eur. J. Biochem.*, 268 (2001) 3950-3957.
- 40.** A portable fiber-optic pesticide biosensor based on immobilized cholinesterase and sol-gel entrapped bromocresol purple for in-field use  
**V.G. ANDREOU, Y.D. CLONIS.**  
*Biosens. & Bioelectr.*, 17 (2001) 61-69.
- 41.** Novel fibre-optic biosensor based on immobilized glutathione S-transferase and sol-gel entrapped bromocresol green for the determination of atrazine.  
**V.G. ANDREOU, Y.D. CLONIS.**  
*Analyt. Chim. Acta*, 460 (2002) 151-161.
- 42.** Galactosyl-biomimetic dye-ligands for the purification of *Dactylium dendroides* galactose oxidase.  
**C.F MAZITSOS, D.J. RIGDEN, P.G. TSOUNGAS & Y.D. CLONIS.**  
*J. Chromatogr. A*, 954 (2002) 137-150.
- 43.** Galactosyl-mimodye ligands for *Dactylium dendroides*  $\beta$ -galactose dehydrogenase: design, synthesis and evaluation.  
**C.F MAZITSOS, D.J. RIGDEN, P.G. TSOUNGAS, Y.D. CLONIS.**  
*Eur. J. Biochem.*, 269 (2002) 5391-5405.

- 44.** Designed chimaeric galactosyl-mimodye ligands for the purification of *Pseudomonas fluorescens*  $\beta$ -galactose dehydrogenase.  
**C.F. MAZITSOS, D.J. RIGDEN, Y.D. CLONIS.**  
*J. Chromatogr. A*, 1029 (2004) 103-112.
- 45.** Engineering the pH-dependence of kinetic parameters of maize glutathione S-transferase I by site-directed mutagenesis.  
**N.E. LABROU, D.J. RIGDEN, Y.D. CLONIS.**  
*Biomol. Eng.*, 21 (2004) 61-66.
- 46.** Interaction of L-glutamate oxidase with triazine dyes: selection of ligands for affinity chromatography.  
**N.E. KATSOS, N.E. LABROU, Y.D. CLONIS.**  
*J. Chromatogr. B*, 807 (2004) 277-285.
- 47.** Engineering the xenobiotic substrate specificity of maize glutathione S-transferase I.  
**N.E. LABROU, G.A. KOTZIA, Y.D. CLONIS.**  
*Prot. Eng.* 17 (2004) 741-748.
- 48.** Development of transgenic tobacco plants overexpressing maize glutathione S-transferase I for chloroacetanilide herbicides.  
**M. KARAVANGELI, N.E. LABROU, Y.D. CLONIS, A. TSAFTARIS.**  
*Biomol. Eng.*, 22 (2005) 121-128
- 49.** Kinetic analysis of maize glutathione S-transferase I catalysing the detoxification from chloroacetanilide herbicides.  
**N.E. LABROU, M. KARAVANGELI, A. TSAFTARIS, Y.D. CLONIS.**  
*Planta*, 222 (2005) 91-97.
- 50.** Nucleotide-mimetic synthetic ligands for DNA-recognizing enzymes: one step purification of *Pfu* DNA polymerase.  
**S. MELISSIS, N.E. LABROU, Y.D. CLONIS.**  
*J. Chromatogr., A*, 1122 (2006) 63-75.
- 51.** Lock-and-key motif as a concept for designing affinity adsorbents for protein purification.  
**D. PLATIS, C.A. SOTRIFFER, Y.D. CLONIS, N.E. LABROU.**  
*J. Chromatogr. A*, 1128 (2006) 138-151.
- 52.** One-step purification of *Taq* DNA polymerase using nucleotide-mimetic affinity chromatography.  
**S. MELISSIS, N.E. LABROU, Y.D. CLONIS.**  
*Biotechnol. J.*, 2 (2007) 121-132.
- 53.** Sulphonamide-based bombesin prodrug analogues for glutathione S-transferase, useful in targeted cancer chemotherapy.  
**I. AXARLI, N.E. LABROU, C. PETROU, N. RASSIAS, P. CORDOPATIS, Y.D. CLONIS.**  
*Eur. J. Med. Chem.*, 44 (2009) 2009-2016.

- 54.** Purification of moloney murine leukemia virus reverse transcriptase lacking RNase activity (M-MLVH<sup>-</sup>RT) on a 9-aminoethyladenine-[1,6-diamine-hexane]-triazine, selected from a combinatorial library of dNTP-mimetic ligands.  
**S. MELISSIS, A. PAPAGEORGIOU, N.E. LABROU, Y.D. CLONIS.**  
*J. Chromatogr. Sci.*, 48 (2010) 496-502.
- 55.** Synthesis and study of 2-(pyrrolo-sulfonylmethyl)-N-arylimines: a new class of inhibitors for human glutathione transferase A1-1 (hGSTA1-1).  
**G. KOUTSOUMPLI, V. DIMAKI, T. THIREOU, E. ELIOPOULOS, N. LABROU, G. VARVOUNIS, Y. CLONIS.**  
*J. Med. Chem.*, 55 (2012) 6802-6813.
- 56.** The interaction of the chemotherapeutic drug chlorambucil with human glutathione transferase A1-1: kinetic and structural analysis.  
**M. KARPUSAS, I. AXARLI, L. CHINIADIS, A. PAPAKYRIAKOU, K. BETHANIS, K. SCOPELITOU, Y.D. CLONIS, N.E. LABROU.**  
*PLoS ONE*, 8 (2013), e56337.
- 57.** Designer xanthone: an inhibitor scaffold for MDR-involved human glutathione transferase isoenzyme A1-1.  
**O. ZOI, T.N. THIREOU, V. RINOTAS, P.G. TSOUNGAS, E.E. ELIOPOULOS, E. DOUNI, N.E. LABROU, Y.D. CLONIS.**  
*J. Biomol. Screen.*, 18 (2013) 1092-1102.
- 58.** 2,2'-Dihydroxybenzophenones and their carbonyl N-analogues as inhibitor scaffolds for MDR-involved human glutathione transferase isoenzyme A1-1.  
**F.D. PERPEROPOULOU, P.G. TSOUNGAS, T.N. THIREOU, V.E. RINOTAS, E.K. DOUNI, E.E. ELIOPOULOS, N.E. LABROU, Y.D. CLONIS.**  
*Bioorg. Med. Chem.*, 22 (2014) 3957-3970.
- 59.** Adenosine reagent-free detection by co-immobilization of adenosine deaminase and phenol red on an optical biostrip.  
**F. BARTZOKA, K. VENETSANOY & Y. CLONIS**  
*Biotechnol. J.*, DOI: 10.1002/biot.201400333.
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### [Reviews & Book Chapters](#)

- 1.** Affinity chromatography.  
**C.R. LOWE, Y.D. CLONIS.**  
*Bioactive Polymeric Systems*, 1985, pp. 203-222, Plenum, New York, USA.
- 2.** The design and applications of biomimetic dyes in biotechnology.  
**C.R. LOWE, S. BURTON, J. PEARSON, Y.D. CLONIS, C.V. STEAD.**  
*J. Chromatogr.*, 376 (1986) 121-130.
- 3.** Dye-ligand chromatography.  
**Y.D. CLONIS.**  
*Reactive Dyes in Protein and Enzyme Technology*, 1987, pp. 33-49, Macmillan, Basingstoke, U.K.



- 4.** High performance dye-ligand chromatography.  
**Y.D. CLONIS, D.A.P. SMALL.**  
*Reactive Dyes in Protein and Enzyme Technology*, 1987, pp. 87-100, Macmillan, Basingstoke, U.K.
- 5.** Large-scale affinity chromatography.  
**Y.D. CLONIS.**  
*Bio/Technology*, 5 (1987) 1290-1293.
- 6.** The applications of reactive dyes in protein and enzyme downstream processing.  
**Y.D. CLONIS.**  
*CRC Crit. Rev. Biotechnol.*, 7 (1988) 263-279.
- 7.** Affinity chromatography.  
**Y.D. CLONIS, C.R. LOWE.**  
*Principles of Clinical Biochemistry*, vol. 2, 1988, pp. 383-390, Heinemann, Oxford, U.K.
- 8.** High performance affinity chromatography.  
**Y.D. CLONIS.**  
*HPLC-A Practical Approach*, 1989, pp. 157-182, IRL Press, Oxford, U.K.
- 9.** Biomimetic dyes in biotechnology.  
**C.R. LOWE, N. BURTON, S. DILMAGHANIAN, S. McLOUGHLIN, J. PEARSON, D. STEWART, Y.D. CLONIS.**  
*Protein-Dye Interactions: Developments and Applications*, 1989, pp. 11-20, Elsevier Science Publishers, Barking, Essex, U.K.
- 10.** Biotechnology in Greece.  
**Y.D. CLONIS.**  
*Int. Industrial Biotechnol.*, 9 (1989) 20-21.
- 11.** Process affinity chromatography.  
**Y.D. CLONIS.**  
*Separation Processes in Biotechnology*, 1990, pp. 401-445, Marcel-Dekker, New York, USA.
- 12.** Preparative dye-ligand chromatography.  
**Y.D. CLONIS.**  
*HPLC of Proteins, Peptides and Polynucleotides*, 1991, pp. 453-468, VCH Publishers, New York, USA.
- 13.** High performance affinity chromatography for protein separation and purification.  
**Y.D. CLONIS.**  
*Practical Protein Chromatography*, Humana Press Inc., New Jersey, USA, 11 (1992) 105-123.
- 14.** The affinity technology in downstream processing.  
**N. LABROU, Y.D. CLONIS.**  
*J. Biotechnol.*, 36 (1994) 95-119.

**15.** The tachykinin family of peptides and their receptors.

**N.E. LABROU, Y.D. CLONIS.**

*Bioactive Peptides in Drug Discovery and Design: Medical Aspects* (I. Matsoukas & T. Mavromoutsakos, eds.), IOS Press, Amsterdam, Netherlands, 1999, pp. 225-233.

**16.** Affinity separation: dye-ligands.

**Y.D. CLONIS.**

*Encyclopaedia of Separation Science* (I. Wilson, ed.), Academic Press Ltd., London, 2000, pp. 259-265.

**17.** Biomimetic dyes as affinity chromatography tools in enzyme purification.

**Y.D. CLONIS, N.E. LABROU, V.Ph. KOTSIRA, C. MAZITSOS, S. MELISSIS, G. GOGOLAS**

*J. Chromatogr. A*, 891 (2000) 33-44.

**18.** Immobilised Synthetic Dyes in Affinity Chromatography.

**N.E. LABROU, Y.D. CLONIS**

*Biochromatography - Theory and Practice* (M.A. Vijayalakshmi, ed.), Taylor and Francis Publishers, London, Chap. 8, pp. 235-251, 2002.

**19.** Affinity chromatography matures as combinatorial and bioinformatic tools develop

**Y.D. CLONIS.**

*J. Chromatogr. A*, 1101 (2006) 1-24.

**20.** Dye-ligands.

**Y.D. CLONIS, N.E. LABROU.**

*Chemical, Molecular Sciences and Engineering*, Elsevier, e-chapter 04410, 2013.

### Conferences

**1.** Some preparative and analytical applications of triazine dyes.

**C.R. LOWE, Y.D. CLONIS, M.J. GOLDFINCH, D.A.P. SMALL and T. ATKINSON.**

*4<sup>th</sup> International Symposium on Affinity Chromatography and Related Techniques (Affinity 1981)*, Veldhoven, The Netherlands, 22-26 June, 1981, Proceedings: *Analyt. Chem. Symp. Series*, vol. 9, Elsevier Publishing Co., Amsterdam, The Netherlands, 1982, pp. 389-398.

**2.** Affinity chromatography on immobilized inosine-5'-monophosphate.

**Y.D. CLONIS.**

*20<sup>th</sup> Conference of the Hellenic Biochemical & Biophysical Society*, NHRF, Athens, 11-12 December 1981, HBBS Newsletter 18, 1982, pp. 5-6.

**3.** Matrix evaluation for preparative high performance affinity chromatography.

**Y.D. CLONIS and C.R. LOWE.**

*7th International Symposium on Affinity Chromatography and Interfacial Macromolecular Interactions (Affinity 1987)*, Oberammergau, Germany, 17-21 August 1987.

**4.** Biomimetic dyes in biotechnology.

**C.R. LOWE, N. BURTON, S. DILMAGHANIAN, S. McLOUGHLIN, J. PEARSON, D. STEWART and Y.D. CLONIS.**

*1<sup>st</sup> International Conference on Dye-Protein Interactions*, University of Compiègne, France, 24-28 July, 1988, proceedings: *Protein-Dye Interactions: Developments and Applications*, Elsevier Science Publishers, Barking, Essex, U.K., 1989, pp. 11-20.

**5.** Ακίνητοποιημένες βιομιμητικές χρωστικές για τον καθαρισμό και την παραγωγή διαγνωστικών και θεραπευτικών ενζύμων.

**Θ. ΜΑΚΡΥΓΙΑΝΝΗΣ, Ε. ΔΙΟΝΥΣΟΠΟΥΛΟΥ, Π. ΚΟΡΔΟΠΑΤΗΣ & Ι. ΚΛΩΝΗΣ.**

*6<sup>ο</sup> Πανελλήνιο Φαρμακευτικό Συνέδριο*, ΜΜΑ, Αθήνα, ΠΡΑΚΤΙΚΑ: Δ43/σελ.151.

**6.** Affinity methods in bioseparation.

**Y.D. CLONIS.**

*6<sup>th</sup> European Congress on Biotechnology*, Florence, Italy, 13-17 June 1993, proceedings: Elsevier Science B.V., Amsterdam, 1994, pp. 527-533.

**7.** Design, synthesis and study of novel chimeric biomimetic dye-ligands for carboxylgroup-recognizing enzymes. Application to the one-step purification of malate dehydrogenase by affinity chromatography.

**N. LABROU and Y.D. CLONIS.**

*42<sup>nd</sup> Conference of the Hellenic Biochemical & Biophysical Society*, NHRF, Athens, 13-14 January 1995, HBBS Newsletter 38, 1995, pp. 30-32.

**8.** Affinity labelling of nucleotide-dependent enzymes & proteases with dichlorotriazine dyes.

**N. LABROU and Y.D. CLONIS.**

*44<sup>th</sup> Conference of the Hellenic Biochemical & Biophysical Society*, NHRF, Athens, 12-13 January 1996, HBBS Newsletter 40, 1996, pp. 59-61.

**9.** Peptide-ligand affinity chromatography adsorbents. Design, study and application to protease purification.

**T. MAKRIYANNIS and Y.D. CLONIS.**

*44<sup>th</sup> Conference of the Hellenic Biochemical & Biophysical Society*, NHRF, Athens, 12-13 January 1996, HBBS Newsletter 40, 1996, pp. 97-98.

**10.** Immobilized peptide-ligands: application to protease purification.

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