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The Lytic Compartment of Plant Cells

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*Dedicated to Prof. A. Frey-Wyssling,
a pioneer in the elucidation of relationships
between cell structure and metabolism,
on his 75th birthday*

About twenty years ago, Prof. FRIEDL WEBER (Graz University) and Prof. L. V. HEILBRUNN (University of Pennsylvania) conceived the idea for the handbook "Protoplasmatologia" at a time when the state of knowledge in the field of cell biology still permitted one to think of an all-encompassing handbook in the classical sense. Since 1953 fifty-three volumes with a total of about 9,500 pages have been published. The very rapid developments in this area of science, especially during the last decade, have led to new insights which necessitated some alterations in the original plan of the handbook; also, changes in the board of editors since the death of the founders have brought about a reorientation of viewpoints.

The editors, in agreement with the publisher, have decided to abandon the confining limits of the original disposition of the handbook altogether and to continue this work, in a form more appropriate to current needs, as an open series of monographs dealing with present-day problems and findings in cell biology. This will make it possible to treat the most modern and interesting aspects of the field as they arise in the course of contemporary research. The highest scientific, editorial and publishing standards will continue to be maintained.

Editors and publisher

Preface

Almost twenty years ago DE DUVE discovered the existence in rat liver cells of a novel class of subcellular structures which he termed lysosomes. As the lysosomes are the seat of various hydrolytic enzymes this discovery greatly stimulated the interest in cellular digestive processes. It is now recognized that compartmentation of hydrolases is an outstanding example of the dependence of metabolic functions on cell structure. The important role of lytic processes in plant metabolism made it interesting to correlate the facts on the various phenomena and present them from the point of view of cellular compartmentation. It is not intended to survey *in extenso* the literature on the various aspects of localization and function of hydrolases in plant cells as this would be an impossible task. The aim of this monograph is to emphasize the significance of hydrolase compartmentation rather than to strive for complete coverage of work on hydrolases in which other viewpoints have been considered.

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Zurich (Switzerland), February 1975

PH. MATILE

Contents

Abbreviations	XIII
Introduction: Lysis and the Lytic Compartment	1
1. Hydrolases and their Localization	3
1.1. Classification and Properties of Hydrolases	3
1.1.1. Peptidases	3
1.1.2. Esterases	4
1.1.2.1. Phosphomonoesterases	4
1.1.2.2. Phosphodiesterases	4
1.1.2.3. Acylesterases	5
1.1.3. Glycosidases	5
1.1.4. General Remarks	6
1.2. External and Internal Locations of Hydrolases	7
1.3. Extracellular Release of Hydrolases	8
1.4. Hydrolases Associated with Cell Walls	10
1.4.1. Demonstration and Estimation of Hydrolases Associated with the Cell Wall	10
1.4.2. Binding of Hydrolases to Cell Walls	15
1.5. Lysosomes	18
1.5.1. Cytochemical and Biochemical Approaches	20
1.5.2. Vacuoles	22
1.5.2.1. Isolation of Vacuoles	24
1.5.2.2. Lysosomal Nature of Isolated Vacuoles	26
1.5.3. Aleurone Bodies	33
1.5.4. Spherosomes	38
2. Origin and Development of the Lytic Compartment	39
2.1. Ontogeny and Development of Vacuoles	40
2.1.1. Vacuolation	40
2.1.2. Involvement of the Golgi-Complex in Vacuolar Development	44
2.1.3. Origin and Development of Aleurone Vacuoles	46
2.2. Origin and Development of Spherosomes	50
2.3. Structures Involved in Hydrolase Secretion	52
2.4. Origin and Intracellular Transport of Hydrolases	57
2.5. The Lytic Compartment of Animal and Plant Cells	60

3. Functions of the Lytic Compartment	64
3.1. Autophagy and Autolysis	64
3.1.1. Turnover in Biochemical Differentiation	64
3.1.2. Senescence	69
3.1.3. Autophagy	74
3.1.4. Autophagy in Cellular Differentiation and Senescence	84
3.1.5. Heterophagy in Plant Cells?	86
3.1.6. Autolysis and Cell Death	90
3.2. Storage and Mobilization	93
3.2.1. Intracellular Digestion of Reserves	93
3.2.1.1. Accumulation and Mobilization in Aleurone Vacuoles	93
3.2.1.2. Spherosomes and Neutral Fat	103
3.2.2. Extracellular Digestion of Reserves	106
3.3. Cell Wall Lysis in Development	108
3.3.1. Cell Wall Metabolism in Growing Cells	108
3.3.2. Senescence, Fruit-Ripening and Abscission	119
3.3.3. Cell Wall Lysis in Differentiating Cells	124
3.4. Cell Wall Degradation in Parasitism	126
3.5. Lysosomal Involvement in Plant Pathology	130
4. Control of Lysis	134
4.1. Seed Germination	134
4.2. Growth and Differentiation	139
4.3. Control of Senescence and Abscission	140
4.4. Control of Hydrolase Production in Fungi	147
Retrospect: "Life's Irreducible Structure"	152
Bibliography	154
Subject Index	177

Abbreviations

AG	Aleurone grain
CW	Cell wall
D	Dictyosome
DV	Dictyosome vesicle
DNA	Deoxyribonucleic acid
DNase	Deoxyribonuclease
ER	Endoplasmic reticulum
M	Mitochondrion
N	Nucleus
P	Plastid
PL	Plasmalemma
R	Ribosome
RER	Rough surfaced endoplasmic reticulum
RNA	Ribonucleic acid
RNase	Ribonuclease
S	Spherosome
SER	Smooth surfaced endoplasmic reticulum
T	Tonoplast
V	Vacuole