

1. Record Nr.	UNINA9910453005703321
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Titolo	Scanning electron microscopy for the life sciences // Heide Schatten [[electronic resource]]
Pubbl/distr/stampa	Cambridge : , : Cambridge University Press, , 2013
ISBN	1-107-23287-2 1-139-85343-0 1-139-01817-5 1-139-84549-7 1-139-83960-8 1-139-84198-X 1-139-84434-2 1-283-81251-7 1-139-84079-7
Descrizione fisica	1 online resource (xi, 261 pages) : digital, PDF file(s)
Collana	Advances in microscopy and microanalysis
Disciplina	570.28/25
Soggetti	Biology - Methodology Scanning electron microscopy
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Title from publisher's bibliographic system (viewed on 05 Oct 2015).
Nota di contenuto	1. The role of scanning electron microscopy in cell and molecular biology: SEM basics, past accomplishments and new frontiers / Heide Schatten -- 2. Corrosion casting technique / Jerzy Walocha, Jan A. Litwin and Adam J. Miodonski -- 3. Revealing the internal structure of cells in three dimensions with scanning electron microscopy / Sol Seppenwol -- 4. Mitochondria form continuous intracellular network-structures visualized with high-resolution field-emission scanning electron microscopy / T. Naguro, H. Nakane and S. Inaga -- 5. Is the scanning mode the future of electron microscopy in cell biology? / Paul Walther, Christopher Schmid, Michaela Sailer, and Katherine Hohn -- 6. High resolution labeling for correlative microscopy / Ralph Albrecht, Daryl A. Meyer and O.E. Olorundare -- 7. The use of SEM to explore virus structure and trafficking / Jens M. Holl and Elizabeth R. Wright --

8. High resolution scanning electron microscopy of the nuclear surface in Herpes Simplex Virus 1 infected cells / Peter Wild, Andres Kaech and Miriam S. Lucas -- 9. Scanning electron microscopy of chromosomes: structural and analytical investigations / Elizabeth Schroeder-Reiter and Gerhard Wanner -- 10. A method to visualize the microarchitecture of glycoprotein matrices with scanning electron microscopy / Giuseppe Familiari, Rosemarie Heyn, Luciano Petruzzello and Michela Relucenti -- 11. Scanning electron microscopy of cerebellar intrinsic circuits / Orlando J. Castejon -- 12. Application of in vivo cryotechnique to living animal organs examined by scanning electron microscopy / Shinichi Ohno, Nobuo Terada, Nobuhiko Ohno and Yasuhisa Fujii -- 13. SEM in dental research / Vladimir Dusevich, Jennifer R. Melander and J. David Eick -- 14. SEM, teeth and palaeoanthropology: the secret of ancient human diets / Alejandro Romero and Joaquin De Juan.

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## Sommario/riassunto

Recent developments in scanning electron microscopy (SEM) have resulted in a wealth of new applications for cell and molecular biology, as well as related biological disciplines. It is now possible to analyze macromolecular complexes within their three-dimensional cellular microenvironment in near native states at high resolution and to identify specific molecules and their structural and molecular interactions. New approaches include cryo-SEM applications and environmental SEM (ESEM), staining techniques and processing applications combining embedding and resin-extraction for imaging with high resolution SEM, and advances in immuno-labeling. New developments include helium ion microscopy, automated block-face imaging combined with serial sectioning inside an SEM chamber, and Focused Ion Beam Milling (FIB) combined with block-face SEM. With chapters written by experts, this guide gives an overview of SEM and sample processing for SEM and highlights several advances in cell and molecular biology that greatly benefited from using conventional, cryo, immuno and high-resolution SEM.

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