Founding, early history, and transformation of the Journal of Lipid Research to an American Society for Biochemistry and Molecular Biology journal

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Abstract The Journal of Lipid Research was founded in October, 1959 and has had a long and distinguished history. It evolved from an initial concept of a loose-leaf methodology handbook to a major journal for the lipid field. Its growth has in many ways paralleled the growth and expansion of lipid research. Today, it is operated as a journal of the American Society for Biochemistry and Molecular Biology at the forefront of biomedical research on lipids.—Dennis, E. A. Founding, early history, and transformation of the Journal of Lipid Research to an American Society for Biochemistry and Molecular Biology journal. J. Lipid Res. 2009. 50: S3–S8.

Supplementary key words historical • lipid • anniversary

I feel very fortunate as an Editor-in-Chief to have the honor of recounting and celebrating the proud 50 year history of The Journal of Lipid Research (JLR). From its humble beginnings in 1959, long before electronic submissions, the National Institutes of Health’s Public Access program, and the advent of the “impact factor,” the JLR has grown to be a significant player in biomedical publications with some 1,200 subscriptions, print and online, mostly to libraries, and an extraordinary readership based on the number of online hits the JLR receives. In a typical week (July 17, 2008), 333,000 requests were made, 95,000 distinct files were requested, and 22,000 distinct hosts were served, roughly double the number of hits for the same week 2 years earlier.

Who would have guessed this development 50 years ago when Edward H. (Pete) Ahrens, Donald Zilversmit, and colleagues incorporated the nonprofit Lipid Research Inc. (LRI) to publish the JLR? Their goal was to ensure that the publication they originally envisioned as a loose-leaf manual focused on methodology would remain under the leadership of active lipid investigators, as it has to this day.

In this article, I hope to provide a brief summary of the JLR’s history, highlighting how the journal has progressed and evolved since 1959, combined with an overview of significant changes in the lipid field during that time; not coincidentally, the two are intertwined.

THE FOUNDING OF THE JLR

The founding of the JLR has been well covered by Howard A. Eder, then President of LRI, initially in the 25th anniversary issue in 1984 (1), and more recently in a 2000 editorial by Richard J. Havel and Trudy M. Forte (2). The following descriptions are (for the most part) directly quoted from the latter source (2), and I recommend the former for a more detailed account.

“In the 1950s lipid research was transformed not only by new analytical procedures for lipids, e.g., cholesterol and triglycerides, but also by new chromatographic methods such as gas-liquid chromatography and thin-layer chromatography. During this period also, new techniques evolved for the fractionation of lipoproteins. There was new insight into the role of lipoproteins in lipid metabolism, and the new procedures were applied to the study of atherosclerosis. This explosion in lipid and lipoprotein methodology opened new areas of investigation in the lipid field.”

“The JLR was an outgrowth of the new methodology. In the late 1950s, Dr. Edward (Pete) H. Ahrens and his colleagues at Rockefeller University discussed the publication of a lipid methodology handbook. In 1957 the National Heart Institute appointed a Committee on Problems of Lipid Analysis, and in April 1958 this committee endorsed the concept of a methods handbook. Dr. Ahrens, a member of the committee, agreed to chair an LRI committee to develop the JLR. The initial goal of the committee was to write a short handbook of clinical methodology for use by clinicians. Dr. Ahrens, a member of several fat and Lipid Research Committees, was an obvious choice for the editor-in-chief.”

Abbreviations: ASBMB, American Society of Biochemistry and Molecular Biology; JLR, Journal of Lipid Research; LRI, Lipid Research Inc.

1 Guest editor for this article was Richard J. Havel, University of California, San Francisco.

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of the committee, proposed the development of a looseleaf methods handbook. In May 1958 the Metabolism and Nutrition Study Section approved the concept, and Dr. Ahrens offered the editorship of the fledgling handbook to Dr. Donald Zilversmit. Elsewhere, this was described as “After some arm-twisting on the boardwalk in Atlantic City, Dr. Donald Zilversmit accepted Ahrens’ offer to be the first editor.” For a complete list of the JLR’s editors to date (3), see Fig. 1.

Havel and Forte (2) continue, “Zilversmit submitted a grant application to the National Institutes of Health (NIH) to obtain funding for the publication of a looseleaf manual that could be kept current and mailed quarterly. The grant was awarded in August 1958” in the amount of $16,502 (1).

Eder (1) notes “Dr. Zilversmit spent the summer of 1958 at Rockefeller University, and after innumerable discussions with Dr. Ahrens and Dr. Jules Hirsch, with advice from Drs. Stanford Moore, William Stein, and George Palade, the handbook concept was abandoned in favor of publication of a high quality journal.”

Havel and Forte (2) continue, “The change in concept was approved by the Heart Council of NIH, and a nonprofit corporate group, Lipid Research, Inc., was established. Its sole function would be the publication of the journal. The first issue, Volume 1, Number 1, was published in October 1959.” (Fig. 2). “That issue and many that followed in those early years were heavily weighted with methodology. However, there were also important articles in lipid metabolism and biochemistry.”

“The first article in the first issue (October 1959) was a review entitled Biosynthesis of fatty acids and cholesterol considered as chemical processes by Dr. J. W. Cornforth, who received the Nobel Prize in 1975.”

THE JLR 1959 – 2000

The 25th anniversary history reports (1) that from the beginning the quarterly Journal thrived. In 1962, Donald Zilversmit was succeeded as editor by Daniel Steinberg at the NIH. In 1964, Edward H. (Pete) Ahrens became editor, and the publication and circulation management of the Journal was assumed by the Rockefeller University Press. Ahrens instituted a new position, Executive Editor, and filled it with Peter Woodford. This allowed the editor to concentrate on evaluating papers for publication while the executive editor assumed responsibility for publication operations, including editorial policy, financial management, and liaison with the publisher and the printer.

In 1966, Dr. Ahrens began (4) bimonthly publication of the Journal and in 1967 (5) he opened two new international editorial offices, one in Kent, England and one in Bangkok, Thailand. In 1968 (1), he appointed five investigators in the New York area to serve as associate editors to address the growing diversity in the lipid field and the increased demands on the editor. “Each manuscript was assigned to an Associate Editor who read the article and evaluated the comments of the editorial board member and reviewers, and often wrote an additional review. Although more often than not the editorial decision of the editorial board member and/or reviewers was sustained, the final decision had to receive the approval of the Associate Editor and the Editor” (1).

In 1969, Maurice Rapport succeeded Dr. Ahrens as Editor, appointing Lewis I. Gidez Executive Editor. Under Dr. Rapport’s leadership, “biweekly or monthly meetings of the Associate Editors (known as the Editorial Committee at that time) became firmly established as a modus operandi for the Journal.” Also in 1969, the NIH terminated its funding for publication of the Journal, after reducing its support to 60% of operating costs in 1964 (1, 6). While at the time “negotiations were carried out with a number of organizations with the aim of finding a sponsor that would assume financial responsibility for the Journal”, LRI Inc., was unable to identify “a commercial publisher who would maintain the high standards of the Journal and, at the same time, keep subscription costs at a level that would assure the broadest distribution. The Board of Directors ultimately decided to continue publication without outside financial support.”

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<tr>
<th>Editor-in-Chief</th>
<th>Institutional Affiliation</th>
<th>Term</th>
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<tr>
<td>Donald B. Zilversmit</td>
<td>Univ of Tennessee, Memphis, TN</td>
<td>1959-1961</td>
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<td>Daniel Steinberg</td>
<td>National Heart Institute, Bethesda, MD</td>
<td>1961-1963</td>
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<tr>
<td>Maurice M. Rapport</td>
<td>Albert Einstein Institute, NYS Psych Inst, NY, NY</td>
<td>1969-1972</td>
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<tr>
<td>Richard J. Havel</td>
<td>Albert Einstein College of Medicine, Bronx, NY</td>
<td>1972-1975</td>
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<tr>
<td>Erwin H. Mosbach</td>
<td>Univ of California, San Francisco, CA</td>
<td>1976-1978</td>
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<tr>
<td>Donald M. Small</td>
<td>Boston University, Boston, MA</td>
<td>1979-1982</td>
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<tr>
<td>Alan M. Fogelman</td>
<td>Univ of California, Los Angeles, CA</td>
<td>1987-1990</td>
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<td>Scott M. Grundy</td>
<td>Univ of Texas Southwestern Med Ctr, Dallas, TX</td>
<td>1991-1995</td>
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<tr>
<td>Arthur A. Spector</td>
<td>Univ of Iowa, Iowa City, IA</td>
<td>1995-1999</td>
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<tr>
<td>Trudy M. Forte</td>
<td>Univ of California, Berkeley, CA</td>
<td>1999-2003</td>
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<td>Edward A. Dennis</td>
<td>Univ of California, San Diego, CA</td>
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<td>Edward A. Dennis &amp; Joseph Witzum</td>
<td>Univ of California, San Diego, CA</td>
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Fig. 1. JLR Editors 1959 to the present. Adopted from (3).

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backing,” and ever since the journal “has been totally self-supporting” (1).

According to Eder (1): “In 1971 FASEB (Federation of American Societies for Experimental Biology) became the journal’s publisher and took over circulation management.” In a foreshadowing of the response to the transfer of these duties to American Society of Biochemistry and Molecular Biology (ASBMB) in 2000 and of the journal itself in 2003, Dr. Rapport hailed the transfer in a 1970 editorial (7): “… the Editor’s freedom from responsibility for the fiscal operation of the Journal in the future will permit him and the Executive Editor to concentrate their efforts on editorial matters” and “Affiliation with FASEB may be thought of as the Journal’s ‘Coming of Age.’” FASEB continued to serve these functions until 2000 (2).

Richard J. (Dick) Havel became Editor in 1972, succeeded by Erwin H. Mosbach in 1976, Donald M. Small in 1979, and Julian B. Marsh in 1983 (1). At this later time, after publishing eight and then nine issues in recent years, the journal became a monthly publication.


In 1998, the journal began publishing online as well as in print. At about this time, the LRI Board of Directors, in consideration of the rapid changes that were occurring in scientific publications, decided it was prudent for it to consider transfer of ownership of this free-standing journal to an established scientific society (2). In 1999, LRI approached the ASBMB and discussions with their Publications Committee ensued.

**ENGAGEMENT AND EVENTUAL MARRIAGE (WITH DOWRY) TO ASBMB**

ASBMB assumed management responsibility for production of the JLR beginning June 1, 2000 (2), initiating a 3 year “engagement” period during which transfer of ownership was to be discussed. At this time, instructions to authors (2) were updated to include an updated scope (including molecular mechanisms, genetic regulation of metabolism, cell biology, and structural biology as they apply to lipid research) and an effort began to shorten times from submission to acceptance.

Also in 2000, the JLR’s 21 year Copy Editor, Joan Reilly, retired, resulting in copyediting responsibility moving to Redactory Services at Capital City Press (the JLR’s printer) (8). Executive Editor Lewis Gidez also retired after 31 years of managing the publication. With his retirement, the Executive Editor position was eliminated, and Virginia Bourgeois was hired as Production Editor (later changed to Peer Review Editor), taking over many of the operational responsibilities of the journal.

Moving into the modern age, the journal in 2001 began using an electronic review process for submitted papers, in 2002 began accepting manuscripts electronically, and making this mandatory for authors in 2003 (9, 10). In 2001, the JLR ensured that all JLR papers from 1998 and later would be available at the JLR website, as well as abstracts for papers from 1975–1997 (9). By mid 2003 (11) all JLR content was available free online, on a 12 month rolling schedule after publication. As a direct consequence manuscript submission increased 19% in the year following online submission. In just 4 months, 86% of all authors were submitting their papers electronically (10).

Also in 2001, JLR introduced a series of thematic reviews with the goal of keeping the readership abreast of fast-developing areas in lipid research (9). Each series includes four to six short and timely reviews covering a specific topic or theme that are published in consecutive months. The first series, beginning the summer of 2001, was on ABC transporters.

The “engagement” between LRI and ASBMB evolved to marriage and, effective July 1, 2003, LRI transferred ownership to ASBMB and JLR became an official ASBMB journal (12). The formal agreement made this commitment: “ASBMB intends to work to maintain JLR as the premier journal in the lipid field, to broaden its appeal to authors, and to increase its impact even more” (12). Along with marriage came a $1 million dowry from LRI in the form...
of a “Reserve Fund” for ASBMB to specifically ensure the survival and promotion of the JLR for the future. I am pleased to say that JLR has operated in the black during every year of ASBMB ownership and the Reserve Fund has appreciated for the future benefit of the Journal. LRI has continued under Havel’s leadership and periodically makes gifts to JLR in support of special initiatives it undertakes.

Concurrent with the transfer of JLR to ASBMB, I was elected to be Editor-in-Chief by the LRI Board and approved by the ASBMB Publications Committee and Council (12). I had served as Chair of ASBMB’s Publications Committee during the initial approach of LRI to ASBMB, and, as part of the engagement with ASBMB, Claudia Kent and I were asked to serve on the LRI Board. During the transfer process Havel, President of LRI, was also appointed to a term on the ASBMB Publications Committee.

Working with ASBMB, I dissolved the existing JLR Advisory Board and created a new enhanced Board of Associate Editors with 19 members (drawn from previous Associate Editors, Editorial Board Members, the Advisory Board, and some new Associate Editors) and a new Editorial Board built up to about 75 members over time. I recruited Joseph L. Witztum to serve as Deputy Editor-in-Chief, a position that had not previously existed for JLR. Associate editors (11) were given full responsibility for their assigned manuscripts, from selection of reviewers to making the final decision on the manuscript. We also broadened the publication to cover “the exciting advances occurring in the lipid, membrane, lipoprotein, signaling, and atherosclerosis fields,” with the goal of including “the ‘genomics, proteomics, and metabolomics’ of lipid and lipoprotein metabolism, including both basic and clinical aspects” (11). At the end of my 5 year term as Editor-in-Chief, I suggested to the ASBMB Publications Committee that Joseph L. (Joe) Witztum, who had served as Deputy Editor-in-Chief since 2003, be allowed to join me as an Editor-in-Chief for our second term. A photo of the current Editors-in-Chief and Associate Editors from 2008 appears in Fig. 3.

During the first 5 years of ASBMB ownership, transformational events occurred, some of which are chronicled in the following sections.

THEN AND NOW

- In 2001, Jules Hirsch (13) noted: “In the 1940s and early 1950s, lipids or lipides (there was disagreement as to which term was correct) did not have the same cachet as proteins or carbohydrates. Lipids of biological origin were known as complex mixtures of water-insoluble substances with components not easily resolvable and not quantifiable by spectrophotometry or other means.” It is interesting today, some 60 years later, to reflect on whether or not this perception of biomedical scientists has changed about lipids!

- From 1959 to 1965, LRI published four issues of JLR annually, progressing to six issues in 1966, eight in 1978, nine in 1982, and finally sticking with the ever-popular monthly publication from 1983 to the present. We have no intention of increasing the frequency of publication, but with Papers in Press, we are now essentially a daily publication!

- In 1964, there were 1,900 subscriptions: one-third personal, two-thirds institutional, and approximately one-half foreign (6). Today, the ratios are about the same, but the total number of subscriptions has decreased by one-third despite the dramatic growth of the scientific enterprise.

- In 1965, 200 manuscripts were received (4); in 2004, the first full year of JLR being owned by ASBMB, the number increased dramatically, with 476 manuscripts received. In 2008, the number is projected to be about 840 (Fig. 4). Of research manuscripts submitted, JLR currently accepts approximately one-third.

- In 1966, there were 43 editorial board members, all men (4). Currently there are 78, including 19 women.

- In January 1969, the JLR began with a review on the novel use of computers in studying rates of lipid metabolism, including a comparison between “computer-oriented”
and “noncomputer-oriented” techniques (14). Today, computer use is taken for granted.

- In 2000 (before the present integrated electronic submission to review to acceptance to publication process was started), the average time from submission to acceptance was 4.7 months, and the average time from acceptance to publication was an additional 3.3 months (2). In 2007, the former figure was 25 days; accepted papers now appear within a couple of days as *Papers In Press* on the *JLR*’s freely accessible website.

- From the onset, there was an emphasis by the editors to make *JLR* an international publication. In 1967, 25% of the published papers were written by foreign authors (5). In 2007–2008 this number was 42%. Our submissions are distributed across the world (Fig. 5). Today, two of our associate editors and over one-quarter of our editorial board members reside outside of the U.S.

- Finally, the impact factor, which did not exist for most of *JLR* history, has taken on an unusual significance in some circles today. The *JLR*’s impact factor has steadily risen and is currently about 4.3. Of greater significance, last year *JLR* articles were cited some 15,000 times, making *JLR* the most highly cited journal devoted to lipid research.

THE NEXT 50 YEARS

When Howard Eder wrote the first history of *JLR* in 1984, he made some (in retrospect) accurate predictions. Here’s what he had to say (1):

“Production techniques have advanced markedly in the last 25 years and composition establishments and printing firms have for many years applied new computer technology to the publication process. However, although authors now make more and more use of word processors to prepare their manuscripts, little has changed in the way editors and publishers handle submitted manuscripts, and in most instances today, the production process begins with a typed manuscript. In the next 25 years this time-honored procedure will change drastically. Electronic interface between author and editor, editor and publisher, and publisher and printer is now possible, and the ’machine-readable submission’ is a realistic expectation.”

“It can be anticipated that over the next 25 years the content of the *Journal* will also change significantly. Twenty five years ago it became possible to separate and quantify individual lipids and fatty acids easily. Now it has become possible to assign specific biological roles to specific lipids, e.g., platelet aggregation factor, and many of the metabolites of arachidonic acid. In the early sixties the heterogeneity of the protein moieties of lipoproteins was first described. This led ultimately to the understanding of the metabolism of lipoproteins in terms of cell biology with discovery of specific apolipoprotein receptors. Clearly, future studies of the interaction between blood constituents and the vascular wall will lead to a greater understanding of atherogenesis. There has also been considerable progress in the elucidation of the molecular biology of these processes; this is just the tip of the iceberg. In the next several years such studies can be expected to provide understanding of the mechanisms involved in the regulation of lipid metabolism at the molecular level. We anticipate that the *Journal of Lipid Research* will play an important role in the reporting of these developments and will continue to serve as a recognized standard of excellence for scientific publication.”

Over the years, the *Journal* has adapted, modifying, adding, and removing sections to best serve its readers, and we have every expectation that it will continue to do so. The initial heavy focus on methodology was evident in the *Journal*’s inclusion of both a “Notes on Methodology” section about modifications to existing methods as well as a “New Methods” section (15). While methodology updates to the lipid community remains an important focus of *JLR*, these sections have long been merged into the general research articles. The “Short Communications” section (started in 1974), renamed “Rapid Communications” (2005) and back to “Short Communications” (2006–2007), was used to improve time to decision and press for some important submissions. This section was permanently dropped in 2007 once the transition to an all-electronic submission and review process accomplished this goal for all manuscripts. In 2001, thematic review series were introduced (9) to keep the readership abreast of fast-developing areas in lipid research. In 2004, a calendar of lipid-related conferences and events was added. In 2006, a “Patient-Oriented Research Articles” section was started (later
changed to “Patient-Oriented and Epidemiological Research Articles”) to highlight “studies in which human subjects play an important role and at least one of the authors has had direct contact with the subjects.” In January 2008, we began a special Commentary Section to highlight and discuss the significance of particularly noteworthy JLR articles in the current or recent issues.

At the beginning of my term as Editor-in-Chief in 2003, Witztum and I (11) wrote: “At the end of the twentieth century, we saw a revolution in ‘genomics’ that is having profound effects on basic science and clinical medicine today. Currently we are in the middle of another revolution, namely ‘proteomics’ – the extension of genomics to attempt to identify, characterize, and quantitate the primary products of the genes (identified in the human genome project) and understand their interactions.” We are currently at the beginning of “the next revolution in biomedical science ... ‘metabolomics’ – the extension of proteomics to identify, characterize, and quantitate all of the metabolic products of the protein synthetic machinery in our cells.” Because “a large portion of metabolic products are lipids,” this has translated into “a parallel revolution” that has led to “the emerging new field of ‘lipidomics’.”

Today, at the end of 2008, we are only beginning to recognize the enormity of the lipid field. With the development and evolution of sophisticated mass spectrometers linked to highly efficient liquid chromatography systems, some with chiral columns, individual molecular species of lipids can now be isolated and identified. With the growing availability of standards, these species can easily be quantitated. It is now clear that each category of lipid consists of thousands if not tens of thousands of individual molecular species, so the total number of unique lipids is enormous, perhaps in the hundreds of thousands when we consider plants, marine organisms, Archaea, and all of the eukaryotic and prokaryotic species. Indeed, lipidomics efforts based on systems biology approaches only recently revealed the necessity for a new lipid classification system to enable consistent databasing and annotation of the numerous lipid molecular species (16). An update of the LIPID MAPS Comprehensive Classification System for Lipids follows (17).

The future holds great potential for resolving metabolism and disease problems that were of considerable interest when the journal was founded 50 years ago and were being actively pursued at the time of the JLR’s 25th anniversary. These can now be tackled systematically using advanced genomic, proteomic, and metabolomic approaches that finally allow us to investigate the role of specific molecular species of lipids. It is interesting that key themes from 50 years ago, such as the role of lipids in atherosclerosis, were still the focus at the time of the JLR’s 25th anniversary and are of even greater interest today. The intervening years have brought us new classes of pharmaceutical agents and new therapeutic approaches and a greater appreciation of the role of certain lipids and their receptors in disease, but we are still working toward a fully developed model of the role and function of each individual lipid molecular species in atherosclerosis and other diseases. Our great hope for advances in molecular biology and biochemistry is the ability to develop a fully integrated and defined explanation for the role of individual molecular species of lipids in the fundamental molecular processes of biology and their relationship to disease. I predict that this will, in the future, lead to an integrated picture of a cell’s genomic, proteomic, and metabolomic profile in disease and a new era of understanding of lipid metabolism in normal and pathological states.

I wish to express my special appreciation to Dr. Richard J. Havel, with whom I have worked closely through the entire transition of the JLR to ASBMB, to Dr. Trudy Forte, who I succeeded as Editor-in-Chief and who was a tremendous help in the transition, to Dr. Joseph L. Witztum, who played such a major role in the JLR as Deputy Editor during my first 5 year term that I invited him to join me as Co-Editor-in-Chief during this second term, to the devoted associate editors, most of whom are serving a second term, and to the numerous editorial board members who make it all possible. Special thanks to Barbara Gordon, Executive Director of the ASBMB, and Nancy Rodman, Publications Manager for their unswerving support of the JLR. Virginia Bourgeois and, for the last year, Mary Chang have astutely managed the journal’s operations and are critical figures in its continuing success. Hector Martinez has provided top IT support to the JLR. Finally, I wish to thank Masada Disenhoused for her insightful counsel to the JLR and expert assistance with the preparation of this manuscript.

REFERENCES