COMPANY CONTACT: **Vion Pharmaceuticals, Inc.**
Alan Kessman, Chief Executive Officer
Howard B. Johnson, President & CFO
(203) 498-4210

VION REPORTS 2007 SECOND QUARTER AND SIX-MONTH RESULTS

Company Updates Status of Phase III and Phase II Pivotal Trials of Cloretazine♦ (VNP40101M)

NEW HAVEN, CT, August 8, 2007 – VION PHARMACEUTICALS, INC. (NASDAQ CAPITAL MARKET: VION) today announced results for the three-month and six-month periods ended June 30, 2007.

The Company reported a net loss of $8.8 million, or $0.13 per share, for the three-month period ended June 30, 2007, compared to a net loss of $6.9 million, or $0.10 per share, for the same period in 2006. Weighted-average common shares outstanding for the three months ended June 30, 2007 and 2006 were 66.4 million and 66.2 million, respectively.

For the six-month period ended June 30, 2007, the net loss was $16.8 million, or $0.25 per share, compared to a net loss of $12.9 million, or $0.20 per share, for the same period in 2006. Weighted-average common shares outstanding of the six months ended June 30, 2007 and 2006 were 66.4 million and 66.1 million, respectively.

Total operating expenses were $8.6 million and $7.4 million for the three months ended June 30, 2007 and 2006, respectively, and $16.5 million and $13.9 million for the six months ended June 30, 2007 and 2006, respectively.

In the quarter, the increase in operating expenses was primarily due to higher total research and development expenses resulting from: (i) late-stage clinical development of Cloretazine® (VNP40101M), including drug production costs for clinical trials and other costs in support of a potential registration filing and (ii) stock-based compensation expense, partially offset by lower spending on clinical trials and preclinical drug production. In addition, selling, general and administrative expenses were higher than the prior year quarter, primarily due to increased stock-based compensation expense.

In the six-month period, the increase in operating expenses was primarily due to higher total research and development expenses resulting from: (i) late-stage clinical development of Cloretazine® (VNP40101M), including drug production costs for clinical trials and other costs in support of a potential registration filing; (ii) a gift to support research projects at a Yale University laboratory; and (iii) stock-based compensation expense, partially offset by lower spending on preclinical drug production. In addition, selling, general and administrative

expenses were higher than the prior year period, primarily due to increased stock-based compensation expense.

The Company reported $1.2 million and $2.2 million of stock-based compensation expense in the three-month and six-month period ended June 30, 2007 respectively, as compared to $445,000 and $946,000 for the comparable 2006 periods.

The Company reported $2.2 million in interest expense for the six months ended June 30, 2007 related to its private placement in February 2007 of convertible debt and warrants. There was no interest expense in 2006. Interest income increased from $1.1 million for the six-month period ended June 30, 2006 to $1.7 million in 2007 for the 2007 six-month period based on higher invested balances and higher interest rates in 2007.

The Company reported ending the quarter with $74.4 million in cash and cash equivalents, which included net proceeds of approximately $55.1 million in connection with the private placement of convertible senior notes and warrants.

The Company also announced that, as of August 1, 2007, 83 patients had been enrolled to the pivotal Phase II trial of Cloretazine® (VNP40101M) as a single agent in elderly *de novo* poor-risk acute myelogenous leukemia (AML). In reference to the pivotal Phase III trial in relapsed AML of Cloretazine® (VNP40101M) in combination with high-dose Ara-C which is on clinical hold, the Company announced that the medical and safety review of the Phase III combination trial has been completed and that discussions were in process with the data safety monitoring board (DSMB) for the trial regarding the findings. The next step of the process is to discuss the conclusions with the regulatory authorities. There can be no assurance that these discussions will result in a continuation of the Phase III trial or what the timing of any such continuation might be.

Alan Kessman, Chief Executive Officer, stated, “In the second quarter, we continued to accrue patients to our pivotal Phase II trial of Cloretazine® (VNP40101M) in frontline elderly *de novo* poor-risk AML. Our goal was to complete accrual of 85 patients to the trial in the June/July timeframe and we are within a few patients of accomplishing that objective. We expect to accrue an additional two patients shortly. We plan on presenting information from the trial at the American Society of Hematology Meeting in December.”

Kessman added, “The findings from the medical and safety review of our Phase III trial of Cloretazine® (VNP40101M) and Ara-C were recently presented to the DSMB for the trial and discussions are ongoing with the DSMB regarding this study. After that there will be discussions with the U.S. Food and Drug Administration (FDA) and other regulatory authorities in the countries where this study is being conducted. We cannot at this time provide an exact timetable for conclusion of those discussions though we would expect to be able to report an updated status later this year.”

He concluded, “Our objective remains to file a New Drug Application for Cloretazine® (VNP40101M) with the FDA in 2008 based on our pivotal Phase II trial.”

Vion Pharmaceuticals, Inc. is committed to extending the lives and improving the quality of life of cancer patients worldwide by developing and commercializing innovative cancer therapeutics. Vion has two agents in clinical trials. Cloretazine® (VNP40101M), a unique alkylating agent, is being evaluated in a Phase II pivotal trial as a single agent in elderly patients with previously untreated *de novo* poor-risk acute myelogenous leukemia. An additional trial of Cloretazine®

(VNP40101M) as a single agent in small cell lung cancer is also underway. Triapine®, a potent inhibitor of a key step in DNA synthesis, is being evaluated in clinical trials sponsored by the National Cancer Institute. In preclinical studies, Vion is also evaluating VNP40541, a hypoxia-selective compound, and hydrazone compounds. The Company also is seeking development partners for TAPET®, its modified *Salmonella* vector used to deliver anticancer agents directly to tumors. For additional information on Vion and its product development programs, visit the Company's Internet web site at www.vionpharm.com.

This news release contains forward-looking statements. Such statements are subject to certain risk factors which may cause Vion's plans to differ or results to vary from those expected, including Vion's potential inability to obtain regulatory approval for its products, delayed or unfavorable results of drug trials, the possibility that favorable results of earlier preclinical studies or clinical trials are not predictive of safety and efficacy results in later clinical trials, the need for additional research and testing, the potential inability to secure external sources of funding to continue operations, the inability to access capital and funding on favorable terms, continued operating losses and the inability to continue operations as a result, and a variety of other risks set forth from time to time in Vion's filings with the Securities and Exchange Commission, including but not limited to the risks attendant to the forward-looking statements included under Item 1A, "Risk Factors" in Vion's Form 10-K for the year ended December 31, 2006 and the Company's Registration Statement on Form S-3 effective August 3, 2007. In particular, there can be no assurance as to the results of any of the Company's clinical trials, that any of these trials will continue to full accrual, or that any of these trials will not be discontinued, modified, delayed or ceased altogether. Except in special circumstances in which a duty to update arises under law when prior disclosure becomes materially misleading in light of subsequent events, Vion does not intend to update any of these forward-looking statements to reflect events or circumstances after the date hereof or to reflect the occurrence of unanticipated events.

--Financial Statements Follow--

VION PHARMACEUTICALS, INC.
(A Development Stage Company)

CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(Unaudited)

(In thousands, except per share data)	Three Months Ended June 30, 2007	2006	Six Months Ended June 30, 2007	2006
Technology license fee revenue	$5	$1	$10	$10
Operating expenses:				
Clinical trials	3,892	3,563	7,291	6,698
Other research and development	2,599	2,233	5,112	4,178
Total research and development	6,491	5,796	12,403	10,876
Selling, general and administrative	2,141	1,635	4,108	3,044
Total operating expenses	8,632	7,431	16,511	13,920
Loss from operations	(8,627)	(7,430)	(16,501)	(13,910)
Interest income	998	526	1,665	1,058
Interest expense	(1,490)	--	(2,229)	--
Other expense, net	(1)	(18)	(4)	(28)
Loss before income taxes	(9,120)	(6,922)	(17,069)	(12,880)
Income tax provision (benefit)	(278)	11	(272)	24
Net loss	$(8,842)	$(6,933)	$(16,797)	$(12,904)
Basic and diluted loss per share	$(0.13)	$(0.10)	$ (0.25)	$ (0.20)
Weighted-average number of shares of common stock outstanding	66,365	66,158	66,363	66,134

CONDENSED CONSOLIDATED BALANCE SHEET DATA
(Unaudited)

(In thousands)	Jun. 30, 2007	Dec. 31, 2006
Cash and cash equivalents	$ 74,360	$ 30,914
Total assets	76,671	31,856
Convertible senior notes	53,753	--
Total liabilities	62,806	6,402
Shareholders' equity	13,865	25,454

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