

Electronic Appendix

The EXULT B Study Group

The members of the EXULT B Study Group are as follows: Executive Committee: Charles W. Francis (cochair), University of Rochester Medical Center, Rochester, New York; Clifford W. Colwell Jr. (cochair), Scripps Clinic, La Jolla, California; Philip C. Comp, University of Oklahoma Health Sciences Center, Oklahoma City, Oklahoma; Jeffrey S. Ginsberg, McMaster University, Hamilton, Ontario, Canada; Jay R. Lieberman, UCLA Medical Center, Los Angeles, California; Guy Paiement, San Francisco General Hospital, San Francisco, California; Scott D. Berkowitz, AstraZeneca LP, Wilmington, Delaware; Jennifer McElhattan, AstraZeneca LP, Wilmington, Delaware; Anne W. Roth, AstraZeneca LP, Wilmington, Delaware; and Seva Panfilov, AstraZeneca R&D, Mölndal, Sweden. Data Safety Monitoring Board: Robin S. Roberts (chair), Hamilton Civic Hospitals Research Center, Hamilton, Ontario, Canada; Marvin Steinberg, Hospital of the University of Pennsylvania, Philadelphia, Pennsylvania; and Alexander G.G. Turpie, Hamilton Health Sciences Corporation, Hamilton, Ontario, Canada. Independent Central Adjudication Committee: Michael Gent (chair), Jack Hirsh, Clive Kearon, Mark Levine, and Jeffrey Weitz, McMaster University, Hamilton, Ontario, Canada.

Site Investigators and Coordinators

The following institutions and persons participated in the study (principal investigators are indicated by an asterisk, and the previous principal investigator for the clinical site is denoted by a dagger symbol): *United States: Arizona* — J.A. Dupont,* R. Korn; *Arkansas* — W.F. Hefley, Jr.,* W.S. Bowen, K.A. Martin, M. Alexander, S. Marti, K. Mills, K. Mercer, P. Short, L. Hastings, R. Satre, K. Weaver, D. Jacks; *California* — G.W. Bradley,* S.A. Plunkett, S.M. Ford, S. Braverman, J. Wrench, L. Harter, D. Fox; C.W. Colwell, Jr.,* S.N. Copp, M. Saeed, K. Ezzet; S.T. Gherini,* S. Croopnick, D. Wentworth, B. Fellmeth, C. DeLemos; H. Kim,* H. Jergeson, R. Sawhney, S. Wall, K. Stanley, A. Sabalvara-Torres; R. Mudiya,* D. Tapadiya, G.S. Patel, M. Soroudi; L. Kwong,* S. Slaughter-Markman, P. Ballesteros, B. Morrow, S.A. Mikulak, J. Harvey, D. Feingold, M. Hewitt, R. Larson, J. Ballesteros, B. Wiley; C. Libanati,* P. Reiswig, G. Watkins, A. Gustafson, D. Wallace, K. Anderson, S. Closson, K. Jolley, N. Hamada, O. Hohmann, T.K. Donaldson, A. Firek, D. Barnes, M. Patel; W. Navigato,* M.T. Mai, R.P. Sakover, D.D. Kim, N.J. Halbridge, J.B. Gonzalez, S.P. Suzuki; T. Miclau,* G.D. Paiement,† A. Davidson, E. Ring, H. Kim; D.R. Shah,* J. Stockwell, J.C. Kim, M. Shah,* K.M. Cirimelli; G. Vallier,* C. Caporiccio, L. Tocchi, M.C. Garcia, R. Burky, Jr., K. Shimansky, M. Schneider, D. Smith; R. White,* D. Link, B. Bowman, J. Rodrigo, J. Meehan, M. Wilde, J. Robbins; M.P. Kimball,* A. Sauer, H.J. Anderson, R.A. Sauer; L. Walker,* W. Navigato, M. Soroudi, J.H. Block; *Colorado* — P.N. Lammens,* K. Carlton, D. Hunter, J. Guyon; J.D. Papilion,* R.L. Greenberg, J.P. Lindberg, H.A. Motz, F.K. Yamamoto, T. Nash, R. Allen, J. Ferrari, D. Chang; *Connecticut* — C. Lewis,* S.F. Schutzer, J.C. Grady-Benson, G.A. Zimmerman, W.J. Glucksman, M. Pederson; *Florida* — D.G. Bramlet,* L.M. Gnage, R.G. Hamilton, B.R. Bolhofner,

R.L. Swiggett, Jr., C.B. Davis II, M.J. Smith, J.A. Rodriguez Jr., W.E. Lowry, B.D. Burke, G.H. Canizares, R.P. Nantais, B.D. Fishalow, C.A. Finn, D.A. Rubins, J.D. Stone, G.A. Call, J.M. Valone, V.C. Page, B.J. Klug, N.M. Farone, T. McTigue, N.P. Lausch, F.T. Wilkins, A.A. Sharf, K.R. Kirn, C.M.C. Ruiz; O.F. Cannon, Jr.,* R.J. Brill, T.D. Lowell, T.E. Lafferty, J.E. Fletcher, K.L. Hisey, J.H. Huddleston, R.E. Prieto, J.R. Locker, N. Burch, A.E. Mattheus, V.B. King, M.C. Standley, S.A. Vining, M.P. French; K. Duane, L.P. Bitting, H.J. Smith, III, M.S. Farber; S.I. Hakki,* S. Harwood, J. Hoeldtke, V. Bilotta, S. Coleman, J. Jenkins; S. Augustine,* L. Derting, J. McAdams, B. Yearly, J. Ollie, D. Darracott, P. Baumann, D. Siragusa, H.M. Northrup, J. Vu; G.S. Kantor,* K. Vaughn, N. Joyce, R. Sarner, W.P. Roemer; M.J. Koren,* S. Neims Greco, J.A. Jacqmein, R.O. Pohl, Jr., D.M. Helmsworth, F.W. Sanchez, D.M. Robison, S.J. Lancaster, D.A. Whitaker, F.A. Hakim; L. Mead,* S.S. Brady, B.L. Woodard, C.E. Stahl, K. Lee-Sinkler, J. Polen, G. Rego, S. Lagman; H.B. Morris,* K.A. Krumins, J.B. Billings, J.F. Byrnes, Jr., R.C. Prati; H. Schuele,* W.A. Hughes, J. Kilgore, C. Abrahamsen, M. Benjamin, F. Persechino; R. Strain, Jr.,* A.J. Reich, W. Grossman, S.D. Steinlauf, M. Kravitz, J. Blaze; W.K. Furman,* D.M. Karp, W.R. Kennedy III, E.J.G. Kennedy, D.A. Sugar, D.J. Slevin, R.J. Lichtenstein, F.M. Tow, F.T. Wilkins, A.A. Sharf, C.M.C. Ruiz, N.P. Lausch, T. Finan, V.C. Page, B.J. Klug, H.W. Vogler, C.A. Diaz, C.W. Rush, G.S. Sharpiro, K.R. Kirn, N.M. Farone, J.R. Ayers, R.A. Smith, Sr.; *Idaho* — C.E. Poole,* D. McGee, N.C. Femino, J.A. Thomason, B. Nelson; *Illinois* — G. Allan,* D.J. Olysav, T. Renfree, L. Klingler, W. Payne, C.M. Bearss, W. Moore; *Iowa* — J. Kimelman,* M. Flapan, M. Matthes, R.E. Johnson, M.S. Rosenfeld, T. Kenney, S. Meyer, S. Misol, W.C. Young, L. Kiley; *Kentucky* — F.A. Burke,* H. Lockstadt, J.K. Farris, G.L. D'Angelo, N. Ellingsen, V.A. Vaslcek, J. Balthrop, T.D. Cervoni, K. Schlenther, D. Winebrenner, E.S. Wilhite, E. Harris, P.M. Brown, C. Riley; A.A. Yashar,* A. Tapp, E.E. Jacob, P. Linville, J. Sunderland, T. Ramey; B.A. Wittmer,* J.M. Donley, J.E. Mesa, S.L. Davis, G.M. Garrett, J. Young, T. Furgerson, J. Esser, B. Holder, C.M. Pinkerton; *Louisiana* — E.J. Lisecki,* D.A. Bernard, H.J. Hebert, Jr., J.O. Landry, B. Snellgrove, T.T. Landry, P. Davis; *Maryland* — D.F. Dalury,* K. Groh, M.J. Adams, L.F. Kiniry, D. Faison; K. Larson,* R.K. Chung, J.J. McLaughlin; *Montana* — D.L. Woolley,* P.B. Peterson, M. Stewart; *New Jersey* — A. Pagliaro,* T.J. Capotosta, Jr., D.J. Fletcher, K. McGuigan, K. Banglawala, R. Agri, C. Terry, K.L. Kunkle, M.J. Levine, G. Tusay, A. Meyers, J.R. Schnell, W. Gomez, R.J. Collins, P.J. O'Donnell, P. Holtzman, M.S. Bursack; *New York* — C.W. Francis,* S.A. Bean, A.D. Boyd, Jr., K.L. Kaplan, E. Spreng, J.M. Shults, D.L. Waldman; H.F. Riegler,* J.D. Marquardt, M.P. Neracker, D.B. Wopperer, J.A. Schuster; I. Ziv,* J. Haumesser, C. Meinking, J. Mikulsky, K. Ammerman, E. Sattelberg, M. Cook; *North Carolina* — T. McCoy,* J.B. Mason, R.B. McBride, Jr., T.H. Buter, W.G. Moorefield, Jr., W.L. Griffin, M. Ohl, A.L. Rhyne, III, P.P. Gilbert, T. Fehring, B.V. Darden, II, M.H. Long, A. Smidowicz, J. High, H.Y. Dunaway, III, J.S. Gaul, III, J. Jester, D. DuPuy, A. Guirgues, P. Capecci, R. Fields, B. Arnold, D.S. Uri, D. Ballard-Wright, N. Summers, K. Prassas, J. Beaghan, J.E. Foster, S.R. Cooklish, K.R. Crump, T.D. Thomas, D.M. Banit,

M.A. Dobzyniak, M. Talbert; *Ohio* — J. Rusin,* A.S. Kaufman, B. Martin, B. Connolly; R.L. Kalb,* G.P. Rothhaas, B.A. Martin, M.A. Ramsey, M.S. Wheeler, A.S. Kaufman, T.L. Wheeler, M.M. Razook, S.A. Williams, D.A. Coreasel, K.A. McConnaughy; W.B. Stanfield,* M.S. Mooney, E. Martinez, L. Allegretto; *Oklahoma* — Phillip C. Comp,* S.W. Farriester, C.W. Beam, D. Alexander, F.E. Rabe, K.R. Robinson; *Oregon* — K.C. Buehler,* D.A. Rogers, S.R. Tyler, R.L. Thomas, T. Clautice-Engle, D. Silsbee, C. Nix; *Pennsylvania* — B.E. Gunnlaugson,* J.M. Moses, I. Katz, D.A. Lowry, V.E. Vena, R.D. Schroeder, P.J. Ridella, K. Betcher, D.H. LeHew, M. Buday, O. Cooley, S. Kaselar, J. Burda, P. Wolfe, P. Lorditch; P.A. Lotke,* J.P. Garino, C. Nelson, W. Ritchie; *South Carolina* — R.J. Friedman,* M. DeVito, D.J. Skinner; *Texas* — Roger H. Emerson, Jr.,* J.M. Hillyard, R.D. Reitman, L. Higgins, M. Jensen, N. Alexander, T. Wen; G.S. Gill,* C. Dihenia, A. Romero, T. Hegstrom, J. Stark; P.C. Peters, Jr.,* G.E. Maale, M.J. Champine, M.M. Katz, W. Dittman, L. Smith; J. Seaquist,* C. Bales, T. Fletcher, C. Craig, M.V. Hill, K.M. Cusick; S.J. Siff,* M. Skolkin, J. Wade, G. Landon; D.L. Fox,* R.E. Wilcox, P.L. Kujawa, K.W. Rohweder, B.E. Schulze, S.L. Sledge, M. Froman, A. Book, S. Sykes; *Virginia* — M.W. Wolfe,* S.C. Mull,† P.P. Jones, P.L. Standifer, R.F. O'Brien, B.A. Bradshaw, A.J. Manville, D.J. Novak, B.A. Torre, B. Spetzler, A.N. Hicks, M.S. Smith, A.A. Durham, L. Richey, J.A. Porter, C.L. Guth, S. Harrell, W.C. Atkinson; *Washington* — W.L. Lanzer,* T. Allen, S.R. Parikh, G.S. Ferguson, K.J. Randall; *Canada: Alberta* — M.J. Mant,* L.M. Larratt, D.B. Russell, A.R. Turner, D. Au, J.G. Cinats, D.W.C. Johnston, P.A. Donahue, P. Kochanski, L. Haykowsky, G.H. Woolsey, M.A. Hamilton, M.V. Lavoie; L.K. Bredo,* R. Perlau, W.R. Reikie, T. Pearce, D. Danciulescu, S. Danciulescu, A. Poole, B. Capusten, Y. Bos, L. Humbke, C. Cundal, J. Glen; *British Columbia* — L. Vickars,* P. Galbraith, S. Horlick, D. Werry, J. Barberie, C. Li, G. McKenzie, W. Yu, H. Hawk, K. Stothers, P. Harrison, P. Chipperfield; W. Pisesky,* D. Boyce, G. O'Connor, T. O'Farrell, J. Oliver, G. Kindrachuk, S. Krywulak; P. McAllister,* C. Landells, M. Stanger, D. Lawrence, S. Southerland; C. Cameron,* W. Malone, B. Woodruff, P. Gutmanis, F. Kernachan, J. Bonnell, P. Trepamier; *Manitoba* — V. deKorompay,* J.E. Irving, S. Ulrich, D. Balageorge, G.W. Pierce, S. Stewart; *New Brunswick* — S. Dolan,* B. Archer, S. Connolly, K. Crane, T. Cambell; *Ontario* — P. Wells,* Melissa Forgie, R. LaRose, P. Murnaghan, J. Aquino, M. Rodger,* J. Brunet, G. Dervin, P. Kim, K. Cernohorsky, R. Feibel, A. Giachino, P. Thurston, P. Rasuli, S. Cartier, H. Hrushowry, W. Castle, K. Nemeth, C. Carruthers, A. Alton, V. Agarwala; D. Puskas,* T. Wilson, T. Boudreau, J. Jones, P. Clark, C. Cullinan, R. VonRichel, S. Stoger; F. Abuzgaya,* H. BenFayed, S. Gallay, M. Hahn, J. Hummel, E. Sue-A-Quan, B. Woolford, E. Urovitz, P. Thompson, J. Lichtfuss, R. Kaminker, M. Prieditis, R. Luba, M. Zwicker, R. Firsoff; S.W. Bartol,* D. Danciulescu, S. Danciulescu, D. Fleming, G. Koppert, R. Yovanovich, G. Annisette, J. Pepin, P. Reynolds, G. Jasey, N. Romanello, W. Ramsewak, P. Tadros; M. Bent,* R.M. Brock, E.J. Rumble, M. West, E.C. Orsini, D. Dejewski, H. Dief; G.A. Crawford,* J.P. Delaney, A. Casses, R. Velazquez, B. Pressnail, S. Styling, W.L. Robinson, P. Voorheis; L. Flores,* C.M. Offierski, J. Ostrowski,

D. Zaniol, D.L. Mallette, T. Li, R. Dan, H.C. Li, D.B. Lee; R.G. Josefcheck,* P.F. Robert, D.C. Martin, J.M. Aubin, M. Orshinsky, D. Nazar, G.C.F. Cook, M.J. Kalchman, R. Rawson; M. Kliman,* M. Roscoe, G. Vincent, M. Wood, A.E. Maraghy, M. Mehta, J. Sinclair, M.E. Rick Zarnett,* T.K. Chan, J.J. Wilson, J. Weiss, B. Smith-Mateschitz, G. Paul Taruli, D. Danciulescu, Shefania Danciulescu; C. Watson,* G. Soon-Shiong, N. Wolfson, K.J. Mac Con, D. Nemtean, D.H. Pham; V.B. Sennik,* D. Simmonds, J. Stewart, R. Saplys, N. Clements, D. Wilson, H. Cheah, D. Davidson, H. Hink, A. Ahmed, T. Stokes; M. Crowther,* J. Douketis, J. Dobranowski; J. Allen,* J.R. Turnbull, S.J. Kearney, M. Yee; P. Ansari,* J.Y. Song, B. Rittenhouse, R.M. Aggarwal, S. Demers, E. Nesbitt, S.R. Orsini; A. Chris,* T. Hupel, J. Israel, P. Schuringa, D. Stevens, P. Stevenson, K. Tilma, C. McCoy, N. Shenouda; M.J. Kovacs,* S. MacDonald, R. McCalden, C.H. Rorabeck, R.B. Bourne, P. Kudo, M. Robbins, C. Talbot, R. Harris, D. Peck; E. Dessouki,* A. Ali, A. Clark, A.S. Ibrahim, M.G. Martin, C. Osinga, A. Myers, C. McCallum, H. Lang, L.M. Ames; J. Cisa,* E.J. Robinson, S. Tubin, D. Healey, R. Greco, C. Cunningham, L. Forestell, D. Kelly, N. Beaudry, R. Desjardins; G. Jaroszynski,* M. Sutherland, J. Thomson; *Prince Edward Island* — A.W. Profitt,* B.E. Ling, B. Grant, J. Goodwin; *Quebec* — C. Demers,* C. Petitclerc, G. Cantin, P.F. Leblond, J. Lyonnais, R. Delage, C. Doyle, J.-M. Turcotte; L. Desjardins,* A. Milot, P. Langis; *Israel* — D. Robinson,* R. Avisar, A. Elbaz, A. Oron, A. Peer, A. Altschuler; M. Roffman,* A. Eyal, M. Aharon, M. Zaidman; *Mexico* — F.A. Rico,* J.G. Díaz, B.R. Marín, P.J. Elguero, C.A. Rubio; G.E.M. Reyes,* R.E. García, V.R.F. Castellanos, L.E.M. Pedroza, J.L.C. Arellano; J.M.M. Camacho,* J.M.J. Avila, S.B.P. Gonzalez, I.L.V. García, J.R. Avila, A.M. Pimentel, V.M.M. Ruelas; J.J.P. Correa,* F.J.M.M. Delgado, I.R. Galvan, J.A.P. Paniagua, I.G. Mendoza, H.Y. Simon, M.C. Villasana; E.G. Sanchez,* L.N. Rodriguez, E.R. Contreras, F.H. Shoji, R.C. Jimenez, A.C.O. Vallin, D.E.O. Martinez, J.M.H. Campos, J.G. Perez, S.B.P. Gonzalez; S.R. Boschert,* R.C.B. Valladares, J.M. Vargas, J.I.B. Acata; A.D. Fernández,* G.D.R. Argomedo, R.Q. Moreno, L.O.L. Montoya; *Brazil* — A. Hernandez,* G.T. Sguizzatto, R. Fecuri, Jr. I. Momiy, H.K. Iri, C.A. de Souza; J.B. de Miranda,* I.H. Barcellos, W.E. de Brito, N.S. Yamada, G.A. Alves, L.M. Ceravollo; M. Moreira,* T.Y. Neto, M.L. Simonetto, A. Moreira, R.P. Buainaim, M.A. de Oliveira Sales, H.K. Farahat, C. de Farias Almeida Alves; M.A.P. de Andrade,* J.P.K. Matushita, W. Lemos, D.P.B. de Sousa, R.B. de Carvalho de Costa, L.H. Vilela, B.P.C. Fontes, R.L.C. de Resende; N. Severino,* O.P.A. de Camargo, R. Fecuri, Jr., L.S. Razaboni, N. Toledo; C.R. Schwartzman,* I. Schmiedt, G.K. de Oliveira, G.L.S. de Freitas, D.P. Tarasconi, A. da Silva Padilha, A.C. Maciel, A.M.F. Garcia, A. da Silva Padilha; J.F.A. Pozzi,* P.C.G. Prestes, S.C. da Costa, L. Zamprogna; S. Mainine,* P.C.Z. de Faria, R.G. Mombach, A.M.C. Valadao de Freitas, F.V. Carvalho, F.C. Barcelos, E.K. Murata, C.J. Shimizu, C. Fumo, C.V.F. Kudo, R. do Nascimento Barbosa; G. de Andrade Souza,* M.A. Ribeiro, A. Naser, F. Nasser, S.K. Gertner, M.H. Matsumoto, J.C.S. Simabukuro; C. Milani,* E.K. Murata, S.D. Squassoni.

TABLE E-I Surgical Details of the Efficacy Population

Characteristic	Ximelagatran (N = 982)	Warfarin (N = 967)
Type of surgery*		
Unilateral total knee arthroplasty	940 (95.7)	921 (95.2)
Bilateral total knee arthroplasty	42 (4.3)	46 (4.8)
Reason for total knee arthroplasty*		
Osteoarthritis	925 (94.2)	923 (95.4)
Rheumatoid arthritis	46 (4.7)	35 (3.6)
Other	11 (1.1)	9 (0.9)
Type of anesthesia*		
General	373 (38)	336 (34.7)
Regional	518 (52.7)	536 (55.4)
General and regional	91 (9.3%)	95 (9.8)
Type of prosthesis*		
Cemented	891 (90.7)	895 (92.6)
Noncemented	22 (2.2)	21 (2.2)
Hybrid	69 (7.0)	51 (5.3)
Duration of surgery† (<i>min</i>)	99.6 ± 36.1	97.3 ± 33.1
Time to first dose†‡ (<i>h</i>)	20.2 ± 3.5	20.2 ± 3.3
Tourniquet duration† (<i>min</i>)	77.8 ± 26.7	75.6 ± 25.7
Time to walking† (<i>d</i>)	1.9 ± 1.9	1.9 ± 1.6
Duration of hospital stay† (<i>d</i>)	5.6 ± 3.0	5.5 ± 2.7

*Values are given as the number of patients with the percentage in parentheses. †Values are given as the mean and the standard deviation. ‡Time to first morning dose of ximelagatran or ximelagatran placebo.

TABLE E-II Evaluation of the Surgical Wound*

Characteristic	Ximelagatran	Warfarin
Wound bleeding		
Unusual bruising and/or hematoma	63/1142 (5.5%)	51/1142 (4.5%)
Intra-articular bleeding	13/322 (4.0%)	11/314 (3.5%)
Wound appearance		
Swelling	54/1142 (4.7%)	52/1141 (4.6%)
Drainage	48/1142 (4.2%)	29/1141 (2.5%)
Erythema	50/1142 (4.4%)	41/1141 (3.6%)
Bleeding	23/1142 (2.0%)	14/1141 (1.2%)
Treatment-emergent postoperative complications†		
Wound site erythema	1/1151 (0.1%)	6/1148 (0.5%)
Wound seroma	4/1151 (0.3%)	0/1148 (0.0%)
Wound hematoma	3/1151 (0.3%)	5/1148 (0.4%)
Stitch abscess	3/1151 (0.3%)	4/1148 (0.3%)
Wound infection	31/1151 (2.7%)	26/1148 (2.3%)
Abscess	1/1151 (0.1%)	0/1148 (0.0%)
Wound dehiscence	3/1151 (0.3%)	5/1148 (0.4%)
Wound necrosis	1/1151 (0.1%)	2/1148 (0.2%)

*The values are given as the number of patients with each bleeding complication or those for whom the particular wound characteristic was “worse than expected” at any scheduled visit, including the follow-up visit. The denominators refer to the number of patients with data available. †According to terminology in an adverse event dictionary.

Fig. E-1. Cumulative Proportion of Bleeding Events (Major and Minor) Over Time for the Entire Study Period. Ximelagatran was not Administered until Day 1.

