Forward-Looking Statements

This presentation includes forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995 that are subject to risks, uncertainties and other important factors that could cause actual results to differ materially from those indicated by such forward-looking statements. Achillion may use words such as “expect”, “anticipate”, “project” “target”, “intend,” “plan,” “aim,” “believe,” “seek,” “estimate,” “can,” “could,” “focus,” “will,” ‘look forward,” “continue,” “goal,” “strategy,” “may” and similar expressions to identify such forward-looking statements. These forward-looking statements are about Achillion Pharmaceuticals, Inc. and its business and prospects, including, without limitation, statements regarding drug discovery, research, clinical development, timing of anticipated clinical trials and clinical data for our product candidates, our expectations regarding the potential safety, efficacy and clinical utility for our product candidates, regulatory approval processes, market opportunities, strategic goals, our collaboration with Janssen in HCV, intellectual property, competition, and financial results. To the extent that statements contained in this presentation are not descriptions of historical facts, they are forward-looking statements reflecting management’s current beliefs and expectations.

Various important factors may cause differences between our forward-looking statements and actual results, including without limitation, unexpected or unfavorable safety or efficacy data, lower than expected enrollment rates in clinical trials, changes in the competitive landscape for our product candidates, changes in the regulatory environment, changes in market conditions or future demand for our drug candidates, the inability to protect our intellectual property, our freedom to operate under third party intellectual property, the risk that Janssen may not advance the HCV program in the time frames projected or at all, our need for future capital, the risk of litigation or other disputes, and general market and economic conditions. These and other risks and uncertainties are described in the reports filed by Achillion with the U.S. Securities and Exchange Commission (“SEC”), including its annual report on Form 10-K and quarterly reports on Form 10-Q, and subsequent filings with the SEC from time to time. You should read these reports, including the Risk Factors contained in these reports with the understanding that our actual future results may be materially different from what we expect.

All forward-looking statements contained in this presentation speak only as of the date hereof, and Achillion undertakes no obligation to update any of these statements, except as required by law.
Our Value
LEADER IN COMPLEMENT AP INHIBITION

First to Clinically Demonstrate AP suppression with Factor D in Healthy Subjects

- Lead clinical program ACH-4471 advancing through Phase 2 development
- Advancing multiple inhibitors toward clinical development
- >30 published patent applications for factor D inhibitors

Dysregulation of the AP is Associated with Diseases such as C3G, PNH, & GA/dry AMD

- Advancing Complement Biology through internal research and external collaborations

Worldwide HCV Collaboration with Janssen

- Once daily regimen achieved 100% cure after six weeks of treatment
- Global Phase 2b OMEGA-1 study completed enrollment with results anticipated 2H17

$386.6 MM in Cash and Equivalents as of March 2017

- Strong financial position to advance multiple programs through key inflection points

GOAL TO DEVELOP DRUGS TO HELP PATIENTS WITH UNDERSERVED NEEDS
# Achillion Development Portfolio

### PROGRAM

<table>
<thead>
<tr>
<th>DELIVERY</th>
<th>DISCOVERY : PRECLINICAL</th>
<th>CLINICAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Discovery</td>
<td>DMPK &amp; Safety</td>
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</table>

### HEPATITIS C

<table>
<thead>
<tr>
<th>Program</th>
<th>Delivery</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>JNJ-4178</td>
<td>Oral</td>
<td>(odalasvir+AL-335+simeprevir) 6- and 8-wks treatment duration</td>
</tr>
</tbody>
</table>

### PNH

<table>
<thead>
<tr>
<th>Program</th>
<th>Delivery</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>ACH-4471: Factor D Inhibitor</td>
<td>Oral</td>
<td></td>
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### C3G

<table>
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<th>Program</th>
<th>Delivery</th>
<th>Notes</th>
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<tr>
<td>ACH-4471: Factor D Inhibitor</td>
<td>Oral</td>
<td></td>
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### AP-mediated diseases

<table>
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<tr>
<th>Program</th>
<th>Delivery</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>Next-Generation Factor D Inhibitors</td>
<td>Oral</td>
<td></td>
</tr>
</tbody>
</table>

### GA/dry AMD

<table>
<thead>
<tr>
<th>Program</th>
<th>Delivery</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor D inhibitors</td>
<td>Ophthalmic</td>
<td></td>
</tr>
</tbody>
</table>
Complement System
The Body’s Innate Defense

- Complement activation and regulation are induced by more than 30 proteins that are present in plasma (fluid phase) and on cell surfaces (solid phase).

- The complement system is composed of three distinct pathways – Classical (CP), Lectin (LP) and Alternative (AP) – which lead to a common terminal pathway.

- Activation of these pathways leads to:
  - Recognition and elimination of pathogens
  - Recruitment of adaptive immunity
  - Facilitation of removal of apoptotic cells

- Dysregulation of the complement alternative pathway can induce inflammation and tissue damage and is associated with a variety of diseases.

Dysregulation of the AP is the underlying cause of disease including PNH, C3G and GA/dry AMD.
Complement System
Pathway Activation

Simplified view of the Classical, Lectin and Alternative Pathways

Mechanism Matters: Trigger Point Inhibition

Factor D
A critical control point specifically within the AP

Trigger Point Inhibitor
Prevents amplification and modulates downstream complement cascade

Mechanism Matters: Trigger Point Inhibition

Factor D
A critical control point specifically within the AP

Trigger Point Inhibitor
Prevents amplification and modulates downstream complement cascade
Mechanism Matters: Trigger Point Inhibition

Factor D
A critical control point specifically within the AP

Trigger Point Inhibitor
Prevents amplification and modulates downstream complement cascade

### Diseases of The Alternative Pathway

#### Benefits of Factor D Inhibition

**MECHANISM MATTERS**

<table>
<thead>
<tr>
<th>PNH</th>
<th>C3G</th>
<th>GA / DRY AMD</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP normal. RBCs lack CD55 &amp; CD59 making them susceptible to the AP-mediated hemolysis</td>
<td>AP is over activated causing pathophysiology of C3G</td>
<td>AP implicated in progression: Factor D is a validated target for GA</td>
</tr>
<tr>
<td>C5-targeted therapies result in suboptimal control of hemolysis due to excessive deposition of C3b on PNH erythrocytes</td>
<td>C3b fragments continuously formed and deposit in the glomeruli affect kidney function</td>
<td>Physicochemical properties of ACHN fD inhibitors convey distinct advantages over biologics</td>
</tr>
<tr>
<td>Factor D inhibitors can reduce C3b production and have the potential to improve treatment outcomes for PNH patients</td>
<td>Factor D inhibitors can reduce C3b production, thus providing disease modifying effect for C3G</td>
<td>Factor D inhibitors can potentially be used with extended delivery technology (≥ 3 months)</td>
</tr>
</tbody>
</table>
Achillion’s complement factor D inhibitor platform has generated:
- ACH-4471: first potent, specific, oral inhibitor of fD advanced into Phase 2
- Next generation factor D inhibitors advancing toward clinical development YE17
- Multiple molecules being progressed for extended (3+ months) ophthalmic delivery

Achillion has generated a platform of potent and specific inhibitors of the alternative pathway (AP)

- These molecules:
  - Reversibly bind to factor D with high-affinity
  - Inhibit the AP by preventing the interaction between factor D and factor B
  - Can be optimized for oral systemic or ophthalmic administration

A disruptive approach to potentially treat complement AP-mediated diseases such as C3G, PNH, and dry AMD
Our Areas of Focus
Paroxysmal Nocturnal Hemoglobinuria (PNH)

Unmet Patient Needs

- Somatic mutation results in red blood cells (RBCs) deficient in CD55 and CD59
- Prevalence of approximately 4,000 U.S and 4,000 EU patients with an incidence of 3-10 cases/million/year
- Current treatment is effective but a significant portion of PNH patients achieve suboptimal response

Even on currently available treatment, PNH patients continue to have unmet needs:

- **Up to a third** of patients have less than normal hemoglobin levels
- **Nearly 1 in 6** patients remain dependent on blood transfusions
- **Up to 20%** of patients require increased doses of mAb C5 inhibitor
- **All patients** require frequent treatment administration by intravenous infusion

Paroxysmal Nocturnal Hemoglobinuria (PNH)

Factor D and Protection from Intra- / Extra-vascular Hemolysis

Type III PNH erythrocytes

No treatment

Intravascular hemolysis

Anti-C5 therapy

C3 fragment deposition

Breakthrough and Extravascular hemolysis

C3 fragment opsonization via RES macrophages (liver, spleen)

Protected PNH erythrocytes

Factor D inhibitor

PNH treated with a fD inhibitor may be protected from both Intra- and Extravascular hemolysis

Adapted from Luzzatto L, Risitano AM, Notaro R. Haematologica 2010;95(4):523–526.
C3 Glomerulopathy (C3G)
A Rare Disease with No Available Treatment

- C3G includes both **Dense Deposit Disease (DDD)** and **C3 glomerulonephritis (C3GN)**

- Estimated prevalence of **8-12 people affected per million in major markets**
  - Incidence rate of 1-2 per million patients diagnosed with C3G on an annual basis

- There are **no approved treatments** for patients with C3G
  - Non-specific treatment approaches include blood pressure control and broad immunosuppression

- Significant unmet medical need as nearly half of **C3G patients progress to end-stage renal disease**
  - 30-50% progress to ESRD within 10 years
  - ~70% of patients experience disease recurrence post renal transplant, with a 50% chance of graft loss

---

**DDD AND C3GN IMPACT ON RENAL SURVIVAL**

<table>
<thead>
<tr>
<th>Years from Diagnosis</th>
<th>Renal Survival (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>10</td>
<td>~80</td>
</tr>
<tr>
<td>20</td>
<td>~40</td>
</tr>
<tr>
<td>30</td>
<td>~20</td>
</tr>
<tr>
<td>40</td>
<td>~10</td>
</tr>
</tbody>
</table>


Barbour et al. (2015); NICE C3G Evidence Summary (2015);
Geographic Atrophy (GA) and Dry AMD  
Factor D Inhibitors in Ophthalmological Disease

Geographic Atrophy (GA), advanced form of Age-related Macular Degeneration (dry AMD)

- **Genetic polymorphisms** in multiple alternative complement pathway loci are associated with GA and the risk of dry AMD

- **Factor D is a validated target**
  - Phase 2 results with lampalizumab reported 44% reduction rate in geographic atrophy at 18 months in patients with factor I polymorphs
  - Phase 3 trial with lampalizumab underway evaluating **intravitreal injections every 4 or 6 weeks**

- Achillion’s small molecule factor D inhibitors leverage the same mechanism as lampalizumab, but have the **potential to be delivered to the eye with a frequency of ≥ 3 months**

Source: www.clinicaltrials.gov
ACH-4471
Phase 1 SAD Healthy Volunteer Study

- Safety, pharmacokinetic and pharmacodynamic trial (6 active subjects per group)
  - **Groups 1 - 3**: Single dose of 200-, 600-, or 1200 mg
  - **Group 4**: Two doses of 1200 mg given Q12H

- **Assessments**
  - Inhibition of serum AP activity in ex vivo assays
  - Safety for AEs/SAEs through the last scheduled visit at Day 28
  - PK / PD assessed from Day 1 to Day 7

- **Demographics**
  - 36 subjects dosed and evaluated (35 males + 1 female)

- **Results**
  - Well-tolerated at all evaluated dose levels
  - First demonstration of up to 100% AP complement inhibition after oral dosing

- **Potential for *in vivo* biomarker**
  - Bb and Ba levels (cleavage products of factor B) are potentially useful as *in vivo* biomarkers of fD inhibition

- **Profile supports ongoing development program**
ACH-4471

Bb levels: *In vivo* Biomarker for AP Activity

- Bb complement protein is generated through the interaction of factor D with factor B and C3.
- Complement protein levels have been well characterized in humans:
  - Individuals and healthy volunteers have median Bb levels ~0.85 mg/l.
  - C3G patients have ≥ 30% higher levels of Bb indicating over-activation of the AP.
- Following a single dose of ACH-4471 (200mg) administered to healthy subjects, up to 41% reduction in Bb levels observed over dosing period.

### Condition | Bb level (mg/l)
--- | ---
Normal subjects | 0.85
C3GN | 1.33
DDD | 1.28

**Relative Change in Bb level**

ACH-4471
Phase 1 MAD Healthy Volunteer Study

- Multiple-ascending dose (MAD) healthy volunteer study
  - Safety, tolerability and PK/PD; dosing up to 14 days
  - Exposure optimization to support Phase 2 program for PNH and C3G

- Pharmacokinetics/Pharmacodynamics
  - 200, 500, 800 mg BID and 75mg TID (8 active + 2 placebo subjects per cohort)

- Activity/Biomarkers
  - Rapid reduction in complement protein Bb, demonstrating that oral administration of ACH-4471 results in inhibition of factor D
  - Rapid and complete suppression of AP hemolytic activity

- Safety
  - Generally well tolerated across all dose groups
  - Two cases of post-treatment, transient and self-limited elevations in ALT was observed in one subject each in 500mg (grade 3 ALT elevation) & 800 mg (grade 4 ALT elevation) dose groups
  - Thorough safety, PK/PD evaluation, and eculizumab benchmarking completed and is supportive of Phase 2 clinical development
Enhance the understanding of PK/PD relationships in PNH.

Projections for efficacious dosing are based on:

- Benchmarking of ACH-4471 with eculizumab for lysis of PNH red blood cells
- PK/PD profile of ACH-4471 from the Phase I program

Ability to maintain exposures above necessary trough concentrations:

- ACH-4471 well absorbed throughout GI tract
- Extended release formulation in development


ACH-4471 was benchmarked using eculizumab for inhibition of hemolysis using PNH red blood cells.
ACH-4471
Phase 2 Program for PNH

- Phase 2 trial for untreated PNH patients
  - Status: Enrollment of patients ongoing.
    - Endpoints: Reduction in lactate dehydrogenase (LDH), improvements in Hgb, and patient reported assessments (FACIT)
    - Assessments: safety, tolerability, and PK/PD
    - Starting dose: 100 mg TID with potential for intra-patient escalation
    - Key Inclusion Criteria:
      - Currently untreated PNH patients
      - PNH Type III erythrocyte and/or granulocyte clone size ≥ 10% and anemia (Hgb < 12g/dL) with adequate reticulocytosis
      - Lactate dehydrogenase (LDH) ≥ 1.5X the upper limit of normal (ULN)
      - Vaccination for N. meningitidis, H. influenza, and S. pneumoniae

- Anticipate reporting interim results during 2Q17
**ACH-4471**

**Phase 2 Program for C3G**

- **Phase 2 clinical trial for C3G**
  - Aim to demonstrate trigger point inhibition and reduction in AP activity
  - Goal: Changes in C3 and Bb levels relative to baseline
  - Assessments: safety, tolerability, and PK/PD
  - Initiation: estimated for 2H 2017

- **Natural History Study of C3G**
  - Imperial College of London
  - Goal: Longitudinal study to track course of the disease over time
  - Enrollment: Three year study estimated to track approximately 400 participants
Bactericidal Activity of Human Serum Remains Unchanged in Presence of ACH-4471

- Inhibition of Factor D (alternative pathway) with ACH-4471 does not affect bactericidal activity against *E. Coli*

- Bactericidal activity is preserved in presence of at least one (alternative, classical or lectin) pathway

- Bactericidal activity is abolished if the terminal pathway (C5 inhibition) is blocked

Opsonophagocytosis is not impaired by ACH-4471

- Opsonophagocytic activity of monocytes and granulocytes is not impaired by ACH-4471 (inhibition of alternative pathway)
- Opsonophagocytosis is impaired significantly in absence of classical+alternative pathway
- Absence of terminal pathway (C5 depletion) has moderate effect on opsonophagocytosis

Data suggest that vaccination shall be more effective in decreasing the risk of meningococcal disease in the presence of an AP inhibitor as compared to a C5 inhibitor.

Sources: Granoff, et al. ‘Effect of complement inhibition by anti-C5 (eculizumab) or a small molecule inhibitor of Factor D (ACH-4471) on survival of meningococci in blood from vaccinated adults’ Presented at: American Society of Hematology; December 3-6, 2016; San Diego; Data on file. Achillion Pharmaceuticals, Inc. www.achillion.com
JNJ-4178 (HCV 3DAA) – Six Week Treatment Potential Demonstrated in Phase 2a

100% SVR12 After 6 Weeks of Dosing in GT1 Non-cirrhotic Patients

- JNJ-4178 (triple combo of simeprevir, odalasvir & AL-335) generally well tolerated and delivered:
  - 100% SVR 12 after 8 weeks of dosing (40/40)
  - 100% SVR 12 after 6 weeks of dosing (20/20)

- Dose and schedule selected for full development
  - Phase 2 studies continuing to enable Phase 3
  - Phase 2b OMEGA-1 in patients without compensated cirrhosis chronically infected with HCV GT 1, 2, 4, 5, 6
  - Expanded Phase 2a in patients with or without compensated cirrhosis
  - Single tablet FDC planned for Phase 3 (QD)

- Short treatment potential demonstrated in most common HCV genotype subtype (GT1)
  - ~70% HCV GT1 prevalence in the G7 market
  - Millions of patients remain untreated

Source: "Short duration treatment with AL-335 and odalasvir (ODV), with or without simeprevir (SMV), in treatment-naive patients with hepatitis C virus (HCV) genotype (GT) 1 infection" poster, EASL/ILASLD Special Conference, Paris, 23 September 2016
JNJ-4178 Highlighted as Top Ten Development Candidate

Our Ongoing Wave of Growth
Driving Above Industry Growth 2015-2019

40 Potential Line Extensions
10 With $500M+ Potential

Potential $1B+ NMEs

5 Significant Near-Term Opportunities

1. Sirukumab - Rheumatoid Arthritis
2. Apalutamide - Metastatic Prostate Cancer
3. Intertarved Myocardiarys
4. JNJ-7597 - CCR5 Antagonist
5. JNJ-3872 - Influenza A

25+ Potential Selected Next Generation NME Filings

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http://files.shareholder.com/downloads/JNJ/3590309116x0x911936/1C9F81CC-F55B-4FA5-A7B3-0D991B055AF6/JNJ_Earnings_Presentation_3Q2016.pdf
Janssen’s HCV Development Program

- **Global development of JNJ-4178** *(odalasvir, AL-335, simeprevir)* **ongoing**
  - Program consists of multiple therapeutic and NDA supporting studies:

- **OMEGA-1: Phase 2b Efficacy, Safety and PK Trial**
  - Trial fully enrolled as of April 2017 (n=365)
  - 2-arm trial evaluating triplet regimen for 6 and 8 weeks
    - ODV (25 mg QD); AL-335 (800 mg QD); SMV (75 mg QD)
    - Patient population: GT 1,2,4,5,6; non-cirrhotics

- **Milestones and Royalties under the Collaboration**
  - **Milestones**
    - $115 million clinical-based
      - $15 million earned following start of Phase 2b enrollment
    - $290 million regulatory-based
    - $500 million sales-based
  - **Royalties**
    - Mid-teens to low-twenties percent
    - Royalties on full net sales – not pro-rated

## Balance Sheet Metrics

<table>
<thead>
<tr>
<th>Metric</th>
<th>As of 3/31/2017</th>
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</thead>
<tbody>
<tr>
<td>Cash, cash equivalents, marketable securities and interest receivable</td>
<td>$386.6 million</td>
</tr>
<tr>
<td>Debt obligations</td>
<td>$0.6 million</td>
</tr>
<tr>
<td>Shares outstanding</td>
<td>136.7 million</td>
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## Top Shareholders†

<table>
<thead>
<tr>
<th>Shareholder</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Johnson &amp; Johnson Development Corp.</td>
<td>18.4 million (13%)</td>
</tr>
<tr>
<td>RA Capital</td>
<td>13.6 million (10%)</td>
</tr>
<tr>
<td>Orbimed Advisors</td>
<td>13.1 million (9.6%)</td>
</tr>
<tr>
<td>Blackrock Institutional</td>
<td>9.3 million (7%)</td>
</tr>
<tr>
<td>Vanguard Group</td>
<td>8.9 million (7%)</td>
</tr>
<tr>
<td>State Street Global Advisors</td>
<td>5.1 million (4%)</td>
</tr>
<tr>
<td>Janus Capital Management</td>
<td>4.7 million (3%)</td>
</tr>
<tr>
<td>Goldman Sachs &amp; Co.</td>
<td>3.7 million (3%)</td>
</tr>
<tr>
<td>T. Rowe Price</td>
<td>3.0 million (2%)</td>
</tr>
<tr>
<td>Numeric Investors</td>
<td>2.6 million (2%)</td>
</tr>
<tr>
<td>BVF Partners</td>
<td>2.4 million (2%)</td>
</tr>
</tbody>
</table>

† Based upon most recent SEC filings as of 2/15/17.
Our Progress & Milestones

COMPLEMENT FACTOR D INHIBITOR PLATFORM

- **Small molecule, oral factor D inhibitors for rare disease**
  - ACH-4471 – First oral fD inhibitor to demonstrate inhibition of the AP after oral dosing
  - Phase 2 trial for untreated PNH ongoing
  - Next-generation compounds being advanced through IND-enabling studies

- **Advancing internal factor D candidates for ophthalmology**
  - Preclinical compounds being advanced for the treatment of dry AMD
  - Targeting ≥ 3 month delivery approach

HCV

- **Collaboration with J&J: JNJ-4178**
  - Triple combination includes Achillion discovered and developed NS5A inhibitor, odalasvir
  - Global Phase 2b OMEGA-1 clinical trial fully enrolled (n=365). Results anticipated during 2H17

COMPLEMENT RESEARCH

- **Presentations at ASH 2016 address issues associated with complement inhibition**
  - No ‘bystander’ effect with bacteria – Dr. Robert Brodsky, Johns Hopkins
  - Bactericidal and opsonophagocytic killing maintained in presence of a fD inhibitor, but not a C5 inhibitor – Dr. Dan Granoff, UCSF Benioff
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