No. 17-1417

IN THE Supreme Court of the United States ------ **** ------KAREN HOWELL. Petitioner, v. STATE OF TENNESSEE, Respondent. ------ **♦** ------On Petition To The Court Of Criminal Appeals Of Tennessee, Eastern Division --------BRIEF OF AMICI CURIAE JUVENILE LAW CENTER, CENTER ON WRONGFUL CONVICTIONS OF YOUTH, AND CENTER FOR LAW, BRAIN AND BEHAVIOR IN SUPPORT OF PETITIONER

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TABLE OF CONTENTS

TABLE	OF AUTHORITIES	. iii
INTER	EST OF AMICI	1
SUMM	ARY OF ARGUMENT	3
ARGUN	MENT	4
(I I J F N	CHIS COURT SHOULD GRANT CERTIORARI TO BAR THE MPOSITION OF LIFE WITHOUT PAROLE SENTENCES ON UVENILES WHO ARE CONVICTED PURSUANT TO THE FELONY MURDER DOCTRINE BUT WHO DID NOT KILL OR INTEND TO KILL	4
A.	This Court Has Established That Children Are Categorically Less Deserving Of The Harshest Forms Of Punishment	7
В.	This Court's Precedent Dictates Against Imposing Felony Murder Liability On Juveniles	.10
С.	The Unique Developmental Attributes Of Youth Are Context Specific And Counsel Against The Imposition Of Absolute Punishments	.13

	1.	Adolescents are more likely to engage in risky behaviors and less likely to appreciate potential long-term consequences	14
	2.		
	3.	Adolescents exhibit reduced self-control in affective contexts	19
D.	Aga	uroscientific Research Weighs ainst Imposing Liability On Young ple For Felony Murder	21
CONC	LUSI	ION	25

TABLE OF AUTHORITIES

Page(s)
Cases
Enmund v. Florida, 458 U.S. 782 (1982)6
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2016)	11

INTEREST OF AMICI¹

Juvenile Law Center advocates for rights, dignity, equity and opportunity for youth in the child welfare and justice systems through litigation, appellate advocacy and submission of amicus briefs, policy reform, public education, training, consulting, and strategic communications. Founded in 1975, Juvenile Law Center is the first non-profit public interest law firm for children in the country. Juvenile Law Center strives to ensure that laws, policies, and practices affecting youth advance racial and economic equity and are rooted in research, consistent with children's unique developmental characteristics, and reflective of international human rights values. Juvenile Law Center has represented hundreds of young people and filed influential amicus briefs in state and federal cases across the country.

The Center on Wrongful Convictions of Youth ("CWCY") operates under the auspices of the Bluhm Legal Clinic at Northwestern University School of Law. A joint project of the Clinic's Center on Wrongful Convictions and Children and Family Justice Center, the CWCY was founded in 2009 with a unique mission: to uncover and remedy wrongful convictions of youth and promote public awareness and support for nationwide initiatives aimed at preventing future wrongful convictions in the juvenile

¹ Pursuant to Rule 37.2 counsel of record received timely notice of the intent to file this brief. Written consent of all parties has been provided. Pursuant to Rule 37.6, no counsel for a party authored this brief in whole or in part. No person or entity, other than *Amici*, their members, or their counsel made a monetary contribution for the preparation or submission of this brief.

justice system. Since its founding, the CWCY has filed amicus briefs in jurisdictions across the country, ranging from state trial courts to the U.S. Supreme Court.

The Center for Law, Brain and Behavior of the Massachusetts General Hospital is a nonprofit organization whose goal is to provide responsible, ethical and scientifically sound translation of neuroscience into law, finance and public policy. in Research findings neurology. psychiatry, psychology, cognitive neuroscience and neuroimaging are rapidly affecting our ability to understand the relationships between brain functioning, brain development and behavior. Those findings, in turn, have substantial implications for the law in general. and criminal law, in particular, affecting concepts of competency, culpability and punishment, along with evidentiary questions about memory, eyewitness identification and even credibility. The Center, located within the MGH Department of Psychiatry, seeks to inform the discussion of these issues by drawing upon the collaborative work of clinicians and researchers, as well as a board of advisors comprising representatives from finance, law, academia, politics, media and biotechnology. It does so through media outreach, educational programs for judges, students practitioners. publications, a "Law Neuroscience" course at the Harvard Law School, and amicus briefs. A particular focus of CLBB has been the question of what constitutes responsible and legal behavior in children and adolescence.

SUMMARY OF ARGUMENT

Karen Howell's prosecution and sentence raise fundamental constitutional issues unresolved by this Court in *Miller v. Alabama*, 567 U.S. 460 (2012). At issue is the constitutional injury suffered by individuals subjected to life without parole sentences for crimes committed as juveniles. Amici echo assertion that *Miller* requires Appellant's individualized consideration of youth attendant characteristics for both the mandatory and discretionary imposition of life without parole sentences. In the instant case, Ms. Howell's discretionary sentence of life without parole did not conform to the constitutional mandates set forth by this Court in Miller.

The constitutional injury to Ms. Howell is made worse here not merely because of the length of her sentence. Ms. Howell's conviction was for felony murder, which imposes accomplice liability without a requisite demonstration of intent. Felony murder ignores the scientific findings underscored by this Court in Miller and its predecessors, Graham v. Florida, 560 U.S. 48 (2010) and Roper v. Simmons, 543 U.S. 551 (2005), and more recent scientific evidence showing that adolescent development is strongly context dependent: risk taking behavior, deficits adolescent decision-making. in vulnerability to peer influence are exacerbated in certain settings. Theories of accomplice liability that permit prosecution and sentencing for felony murder and preclude any individualized examination of the circumstances of the defendant's participation run afoul of this Court's holding in *Miller* and the Eighth Amendment proportionality requirements.

ARGUMENT

When Karen Howell was seventeen years old, she was convicted of three counts of felony murder and sentenced to three consecutive terms of life without the possibility of parole for her participation in the murders. There is no evidence to demonstrate that Ms. Howell killed or intended to kill any of the three victims. This case raises fundamental questions about the fairness of applying the harshest available punishment to juveniles convicted of felony murder in light of developmental and neuroscientific findings about the reduced culpability of juvenile offenders.

This Court should grant certiorari because evidence, rooted in law and science, demonstrates life without the possibility of parole is never an appropriate sentence for young people convicted of felony murder or under a theory of accomplice liability.

I. THIS COURT SHOULD GRANT CERTIORARI TO BAR THE IMPOSITION OF LIFE WITHOUT PAROLE SENTENCES ON JUVENILES WHO ARE CONVICTED PURSUANT TO THE FELONY MURDER DOCTRINE BUT WHO DID NOT KILL OR INTEND TO KILL

Liability for felony murder need not depend on an intent to kill: a person can be convicted of felony murder even if the killing was "accidental, unforeseeable, or committed by another participant in

the felony." Emily Keller, Constitutional Sentences for Juveniles Convicted of Felony Murder in the Wake of Roper, Graham & J.D.B., 11 CONN. PUB. INT. L.J. 297, 302-03 (2012). Liability is justified by a theory of "transferred intent;"—the intent to kill is inferred from an individual's intent to commit the underlying felony because a reasonable person would know that death is a possible result of dangerous felonious activities. Id. at 305. However, as Justice Breyer explained in his concurring opinion in Miller v. Alabama, this rationale fails when applied to juveniles.

At base, the theory of transferring a defendant's intent is premised on the idea that one engaged in a dangerous felony should understand the risk that the victim of the felony could be killed, even by a confederate. Yet the ability to consider the full consequences of a course of action and to adjust one's conduct accordingly is precisely what we know juveniles lack capacity to do effectively.

567 U.S. 460, 492 (2012) (Breyer, J., concurring) (citations omitted).

Graham forbade the imposition of life without parole sentences on juveniles "who do not kill, intend to kill, or foresee that life will be taken" because they "are categorically less deserving of the most serious forms of punishment than are murderers. Graham v. Florida, 560 U.S. 48, 69 (2010). "[W]hen compared to an adult murderer, a juvenile offender who did not kill or intend to kill has a twice diminished moral culpability." Id.

The reasoning in *Graham* builds on this Court's felony murder jurisprudence in the death penalty context, which recognizes that the diminished culpability of non-principals precludes the application of the most extreme sentencing schemes individuals who may have participated in, but did not commit, a murder. See Tison v. Arizona, 481 U.S. 137, 158 (1987) (upholding defendant's death sentence when he acted with "reckless disregard" and participation in the crime was "major"); Enmund v. Florida, 458 U.S. 782, 801 (1982) (reversing death sentence where defendant's culpability accomplice who did not kill or intend to kill was less than that of his accomplices who participated directly in the killing). The Court held that mandatory life without parole sentences for children convicted of homicide offenses violates the Eighth Amendment because the sentencer must take into account the juvenile's "lessened culpability," "greater 'capacity for change," and individual characteristics before imposing such a harsh sentence. Miller, 567 U.S. at 465 (quoting *Graham*, 560 U.S. at 68, 74).

Simply put, an accomplice is less culpable than one directly involved in the killing and should never be categorized as one of the "uncommon" or "rare," most culpable juvenile offenders for whom a life without parole sentence would be proportionate or appropriate. *See Miller*, 567 U.S. at 479.

A. This Court Has Established That Children Are Categorically Less Deserving Of The Harshest Forms Of Punishment

It would be inconsistent with the logic of Graham and Miller—which mandate proportionality and gradation of sentences based on culpability and the nature of the offense—to give a juvenile accomplice the same sentence as an adult principal who actually killed or intended to kill their victims. Graham, 560 U.S. at 59. ("Embodied in the Constitution's ban on cruel and unusual punishments is the 'precept of justice that punishment for crime should be graduated and proportioned to [the] offense." (alteration in original) (citing Weems v. United States, 217 U.S. 349. 367 (1910))).Individualized "distinctive (and consideration of a juvenile's transitory) mental traits and environmental vulnerabilities," see Miller, 567 U.S. at 473, as well as a consideration of the circumstances of the offense and the precise nature of the youth's involvement, are constitutionally required to ensure punishment fits both the offense and the offender.

In *Roper*, *Graham*, and *Miller*, this Court recognized that children are fundamentally different from adults and categorically less deserving of the harshest forms of punishments. Relying on *Roper*, this Court in *Graham* cited three essential characteristics which distinguish youth from adults for culpability purposes:

[a]s compared to adults, juveniles have a "lack of maturity and an underdeveloped sense of responsibility"; they "are more

vulnerable or susceptible to negative influences and outside pressures, including peer pressure"; and their characters are "not as well formed."

560 U.S. at 68 (citing *Roper v. Simmons*, 543 U.S. 551, 569-70 (2005)). Graham found that "[t]hese salient characteristics mean that '[i]t is difficult even for expert psychologists to differentiate between the juvenile offender whose crime reflects unfortunate yet transient immaturity, and the rare juvenile offender crime reflects irreparable corruption. Accordingly, 'juvenile offenders cannot with reliability be classified among the worst offenders." Id. (quoting Roper, 543 U.S. at 569, 573). This Court concluded that "[a] juvenile is not absolved of responsibility for his actions, but his transgression is not as morally reprehensible as that of an adult." Graham, 560 U.S. at 68 (quoting Thompson v. Oklahoma, 487 U.S. 815, (1988)(plurality opinion)). Because personalities of adolescents are still developing and capable of change, an irrevocable penalty that affords opportunity for release is developmentally inappropriate and constitutionally disproportionate. This Court further explained that:

Juveniles are more capable of change than are adults, and their actions are less likely to be evidence of "irretrievably depraved character" than are the actions of adults. *Roper*, 543 U.S. at 570. It remains true that "[f]rom a moral standpoint it would be misguided to equate the failings of a minor with those of an adult, for a greater possibility

exists that a minor's character deficiencies will be reformed."

Graham, 560 U.S. at 68 (quoting *Roper*, 543 U.S. at 570). The holding in *Graham* rested largely on the incongruity of imposing a final and irrevocable penalty on an adolescent, who had capacity to change and grow.

In reaching these conclusions about a juvenile's reduced culpability, this Court has relied upon an increasingly settled body of research confirming the distinct emotional, psychological, and neurological attributes of youth. This Court clarified that, since Roper, "developments in psychology and brain science continue to show fundamental differences between juvenile and adult minds. For example, parts of the brain involved in behavior control continue to mature through late adolescence." Graham, 560 U.S. at 68. Thus, because juveniles are more likely to be reformed than adults, the "status of the offenders" is central to question of whether punishment a constitutional. Id. at 68-69.

In 2012, this Court expanded its juvenile sentencing jurisprudence, banning mandatory life without parole sentences for children convicted of homicide offenses. Reiterating that children are fundamentally different from adults, this Court held that a sentencing scheme that mandates life without parole for juvenile offenders violates the Eighth Amendment and that the sentencer must take into account the juvenile's "lessened culpability," "greater 'capacity for change," and individual characteristics before imposing this harshest available sentence. *Miller*, 567 U.S. at 465 (quoting *Graham*, 560 U.S. at

68, 74). "[T]hose [scientific] findings—of transient rashness, proclivity for risk, and inability to assess consequences—both lessened a child's culpability' and enhanced the prospect that, as the years go by and neurological development occurs, his 'deficiencies will be reformed." Id. at 472 (quoting Graham, 560 U.S. at 68-69); Roper, 543 U.S. at 570. Importantly, in *Miller*, this Court found that none of what Graham "said about children-about their distinctive (and transitory) mental traits and environmental vulnerabilities—is crime-specific." 567 U.S. at 473 (emphasis added). Rather, "the distinctive the penological of youth diminish attributes justifications for imposing the harshest sentences on juvenile offenders, even when they commit terrible crimes." Id. at 472. Justice Sotomayor recently underscored Miller's mandate, requiring judges to make specific findings to determine "whether the petitioner was among the very 'rarest of juvenile offenders, those whose crimes reflect permanent incorrigibility." Tatum v. Arizona, 137 S. Ct. 11, 12 (2016) (mem.) (Sotomayor, J., concurring) (quoting Montgomery v. Alabama, 136 S. Ct. 718, 734 (2016)).

B. This Court's Precedent Dictates Against Imposing Felony Murder Liability On Juveniles

The felony murder rule dates back to eighteenth century England. Guyora Binder, *Making the Best of Felony Murder*, 91 B.U. L. REV. 403, 413-415 (2011). Early English courts limited the felony murder doctrine to require (1) that the defendant's conduct in the felony involve an act of violence, or (2) that the death be the natural and probable consequence of the

defendant's conduct in committing the felony. WAYNE R. LAFAVE, SUBSTANTIVE CRIMINAL LAW, § 14.5. Felony Murder (West, 2d ed. 2016). By the end of the nineteenth century, felony murder liability was predicated on a foreseeable dangerous act. Leonard Birdsong, Felony Murder: A Historical Perspective by Which to Understand Today's Modern Felony Murder Rule Statutes, 32 T. MARSHALL L. REV. 1, 16 (2006). Even still, the rule was disfavored, and England officially abolished felony murder by statute in 1957. Id.

In the United States, felony murder liability emerged in the nineteenth century as murder laws were codified and murder was limited to "killings' that were intentional or committed in furtherance of particularly heinous crimes." Binder, supra, at 415. See also Keller, supra, at 304. Unlike today's felony murder rules, early statutes required that the defendant have the intent to inflict an injury during the felony, even if they did not have the intent to kill. Keller, supra, at 304. While some courts emphasized the wickedness of the felonious purpose, others emphasized the dangerousness of certain felonies. This led to what legal scholars classify as the principle of dual culpability: felony murder was wrong not simply because the accused committed a dangerous act, but because this act was coupled with a 'wicked' motive. Binder, supra, at 416-17.

As states enacted new penal codes abandoning the requirement that a participant have intent to wound or injure the victim, the underlying predicate felonies in felony murder statutes were expanded to include less serious and less violent crimes. Keller, supra, at 304. Simultaneously, courts began finding liability for felony murder even when the connection between the felonious act and the killing was attenuated. *Id.* Today, a number of states have adopted statutes by which an accomplice to a crime is held accountable to the same extent as the principal. "Collectively, these statues and case law allow felony murder convictions even where the participant's involvement was very minor and the death was unintended or unanticipated." *Id.* at 305. Underlying these laws is the assumption that an individual who takes part in a felony should understand, foresee, and thus reasonably assume the risk that someone might get killed during the commission of a felony. *Id.*

The felony murder statute in Tennessee imposes strict liability: it is a "killing of another committed in the perpetration of or attempt to perpetrate any first degree murder" and "no culpable mental state is required for conviction." TENN. CODE. ANN. §§ 39-13-202 (a)(2), (b) (2007). In the instant case, there is no evidence to demonstrate Ms. Howell's intent to kill the victims. At seventeen years old, Ms. Howell lacked the maturity, impulse control, and decision-making skills of an adult. Indeed, it would be the unusual juvenile whose participation in criminal conduct is not closely correlated with his immaturity, impulsiveness, and underdeveloped decision-making skills. Therefore, absent expert testimony establishing that a particular juvenile's maturity and sophistication were more advanced than a typically-developing juvenile, a sentencer must presume that the juvenile offender lacks adult maturity, adult impulse control, and consistent critical decision-making skills, and treat this lack of maturity as a factor counseling against the imposition of a life sentence.

C. The Unique Developmental Attributes Of Youth Are Context Specific And Counsel Against The Imposition Of Absolute Punishments

Because adolescents' riskassessment and decision-making capacities differ from those of adults in ways that make it unreasonable to presume that juveniles would reasonably know or foresee that death may result from their actions, their risk-taking should not be equated with malicious intent. In particular, this Court has noted that adolescents have "[d]ifficulty in weighing long-term consequences" and "a corresponding impulsiveness." Graham, 560 U.S. at 78. See also Elizabeth S. Scott & Laurence Steinberg. Adolescent Development and Regulation of Youth Crime, 18 THE FUTURE OF CHILDREN 15, 20 (2008).

But these deficits are particularly pronounced in certain settings. Studies reveal that adolescents are more vulnerable to peer influence and likely to experience greater reduction in self-control and impulsivity and greater decision-making deficits in excited emotional states than are adults in similar situations. Punishments that do not account for these particular attributes of youth are violative of this Court's mandates in *Miller*.

Ms. Howell's conviction is not one of direct participation, but one of accomplice liability, which ignores precedent and scientific findings underscored by this Court, as well as more recent scientific evidence showing that specific contexts, such as the presence of peers or high arousal settings, actually exacerbate adolescent deficiencies in decisionmaking, risk appraisal, self-control and impulsivity. Miller, 567 U.S. 460; Graham, 560 U.S. 48; Roper, 543 U.S. 551. See also Laurence Steinberg et al., Peers Increase Adolescent Risk Taking Even When the Probabilities of Negative Outcomes Are Known, 50 DEVELOPMENTAL PSYCHOL. 1. (2014),https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4305 434/pdf/nihms652797.pdf (Adolescents' risk-taking behavior in the presence of their peers coincides with "increased activation of brain regions specifically associated with the prediction and valuation of rewards. including the ventral striatum orbitofrontal cortex."). As this Court held that sentencers must take a juvenile's 'lessened culpability' and individual characteristics theories of liability that preclude account. individualized consideration of the setting in which adolescents make decisions are likewise flawed.

1. Adolescents are more likely to engage in risky behaviors and less likely to appreciate potential long-term consequences

What is "reasonably foreseeable" to an adult is likely not "reasonably foreseeable" to a child. See J.D.B. v. North Carolina, 564 U.S. 261, 274 (2011) ("Indeed, even where a 'reasonable person' standard otherwise applies, the common law has reflected the reality that children are not adults."). See also Marsha L. Levick & Elizabeth-Ann Tierney, The United States Supreme Court Adopts A Reasonable Juvenile

Standard in J.D.B. v. North Carolina for Purposes of the Miranda Custody Analysis: Can A More Reasoned Justice System for Juveniles Be Far Behind?, 47 HARV. C.R.-C.L. L. Rev. 501, 506 (2012) ("The qualities that characterize the reasonable person throughout the common law-attention, prudence, knowledge, intelligence, and judgment—are precisely those that society fails to ascribe to minors."). As adolescents who participate in felonies are less likely to foresee or account for the possibility that someone may get killed in the course of that felony, their participation cannot be presumed to reflect a malicious intent to kill.

Adolescents' risk assessment and decisionmaking capacities differ from those of adults in ways that are particularly relevant to felony murder cases. See Keller, supra, at 312-16. This Court has observed adolescents "often lack the perspective, and judgment to recognize and avoid choices that could be detrimental to them." J.D.B., 564 U.S. at 272 (quoting Bellotti v. Baird, 443 U.S. 622, 635 (1979)). See also Scott & Steinberg, supra, at 20. ("Considerable evidence supports the conclusion that children and adolescents are less capable decision makers than adults in ways that are relevant to their criminal choices."). Although adolescents have the capacity to reason logically, they "are likely less capable than adults are in using these capacities in making real-world choices, partly because of lack of experience and partly because teens are less efficient than adults at processing information." Scott & Steinberg, supra, at 20. Because adolescents are less likely to perceive potential risks, they are less riskaverse than adults. Id. at 21.

Additionally, because adolescents attach different values to rewards than adults do, they often exhibit sensation-seeking characteristics that reflect their need to seek "varied, novel, [and] complex . . . experiences [as well as a] willingness to take physical, social, legal and financial risks for the sake of such experience." MARVIN ZUCKERMAN, **BEHAVIORAL** EXPRESSIONS AND BIOSOCIAL BASES OF SENSATION SEEKING 27 (1994). The need for this type of stimulation often leads adolescents to engage in risky behaviors, and as they have difficulty suppressing action toward emotional stimulus, they often display a lack of self-control. Scott & Steinberg, supra, at 20. The Supreme Court has recognized this, stating that adolescents "have a 'lack of maturity and an underdeveloped sense of responsibility,' leading to recklessness, impulsivity, and heedless risk-taking." Miller, 567 U.S. at 471 (quoting Roper, 543 U.S. at 569). As a result, it is not surprising that "adolescents are overrepresented statistically in virtually every category of reckless behavior." Roper, 543 U.S. at 569 (quoting Jeffrey Arnett, Reckless Behavior in Adolescence: A Developmental Perspective, 12 DEV. REV. 339, 339 (1992)).

Finally, and perhaps most relevant in the context of felony murder, adolescents have difficulty thinking realistically about what may occur in the future. See Brief for the American Psychological Association et al. as Amici Curiae Supporting Petitioners at 11-12, Graham v. Florida, 560 U.S. 48 (2010) (Nos. 08-7412, 08-7621). This lack of future orientation means that adolescents are both less likely to think about potential long-term consequences, and more likely to assign less weight to those that they have identified,

especially when faced with the prospect of short-term rewards. Scott & Steinberg, *supra*, at 20; *Graham*, 560 U.S. at 78. These differences often cause adolescents to make different calculations than adults when they participate in criminal conduct.

Adolescents' willingness to act as accomplices in "inherently dangerous" felonies more accurately reflects the impulsiveness, failure to exercise good judgment, and inability to accurately assess risks that this Court has recognized are common. See Miller, 567 U.S. at 471; see also Roper, 543 U.S. at 569. Thus, holding an adolescent liable for murder because he or she should have been able to "reasonably foresee" the same risks as an adult is nonsensical, and the theory of "transferred intent" is unjustifiable when juveniles are not found to have killed, intended to kill, or foreseen that life would be taken. See Graham, 560 U.S. at 69.

2. Adolescents are more susceptible to negative influences

This Court has recognized that "juveniles are more vulnerable or susceptible to negative influences and outside pressures, including peer pressure" than adults. *Roper*, 543 U.S. at 569 (citing *Eddings v. Oklahoma*, 455 U.S. 104, 115 (1982)). As "[m]idadolescence is marked by decreased dependency on parental influence and increased dependency on peer influence," an adolescent's decision to participate in a felony is more often driven by fear of ostracism than rational thinking. Alison Burton, *A Commonsense Conclusion: Creating A Juvenile Carve Out to the Massachusetts Felony Murder Rule*, 52 HARV. C.R.-C.L. L. REV. 169, 186-87 (2017) (citing Laurence

Steinberg & Susan B. Silverberg, The Vicissitudes of Autonomy in Early Adolescence, 57 CHILD DEV. 841, 848 (1986)). When adolescents are pressured by their peers to participate in a criminal act, they may do so out of a misplaced concern about fitting in, even if they do not condone or want to participate in the criminal activity. Id. (citing DAVID MATZA, DELINQUENCY AND DRIFT 57 (1964)); see Jacob T.N. Young & Frank Weerman, Delinquency asaConsequence Misperception: Overestimation of Friends' Delinquent Behavior and Mechanisms of Social Influence, 60 Soc. Probs. 334, 337 (2013)(citing Breznitz, Juvenile Delinquents' Perceptions of Own and Others' Commitment to Delinquency, 12 J. Res. CRIME & DELINQ. 124 (1975)); see also M.D. Buffalo & Joseph W. Rodgers, Behavioral Norms, Moral Norms, Attachment: Problemsof Deviance Conformity, 19 Soc. Probs. 101 (1971); see also Mark Warr & Mark Stafford, The Influence of Delinquent Peers: What They Think or What They Do?, 29 Criminology 851 (1991).

[The youth] may assume that his friends will reject him if he declines to participate—a negative consequence to which he attaches considerable weight in considering alternatives. He does not think of ways to extricate himself, as a more mature person might do. He may fail to consider possible options because he lacks experience, because the choice is made so quickly, or because he has difficulty projecting the course of events into the future. Also, the "adventure" of the [crime] and the possibility of getting

some money are exciting. These immediate rewards, together with peer approval, weigh more heavily in his decision than the (remote) possibility of apprehension by the police.

Scott & Steinberg, supra, at 22. This concern about 'fitting in' is one of the main reasons why juveniles are far more likely to participate in group crimes than adults are. Burton, supra, at 187 (citing FRANKLIN E. ZIMRING, AMERICAN YOUTH VIOLENCE 29 (1998)). One study found that over half of all violent crimes committed by individuals under the age of 16 involve multiple offenders. Id. The study also found that approximately 51% of the homicides committed by juveniles involve multiple offenders, as compared to only 23% of homicides committed by adults. *Id.* These confirm that because iuveniles particularly susceptible to peer pressure groupthink, they are more likely than adults to be talked into participating in a felony. As adolescents are more likely to act based on impulses and emotions than rational thinking, they often fail to do a careful assessment of the risks to themselves or others, even when engaging in felonious activities.

3. Adolescents exhibit reduced selfcontrol in affective contexts

Juveniles are also more likely than adults to take risks in emotionally-charged or exciting situations. See, e.g., Alexandra Cohen et al., When Is An Adolescent An Adult? Assessing Cognitive Control in Emotional and Nonemotional Contexts, 27 PSYCHOL. Sci. 549, 555-559 (2016); Bernd Figner et al., Affective and Deliberative Processes in Risky Choice: Age

Differences in Risk Taking in the Columbia Card Task, 35 J. EXPERIMENTAL PSYCHOL. 709, 710 (2009). Although adolescents react impulsively to positive cues (i.e. happy facial expressions as opposed to neutral ones), Leah Somerville et al., Frontostriatal Maturation Predicts Cognitive Control Failure to Appetitive Cues in Adolescents, 23 J. COGNITIVE NEUROSCI. 2123, 2129 (2011), they also experience reduced self-control "in the presence of threat." Michael Dreyfuss et al., Teens Impulsively React Rather Than Retreat From Threat, DEVELOPMENTAL. NEUROSCI. 1, 7 (2014). Instead of "retreating or withholding a response to threat cues, adolescents are more likely than adults to impulsively react to them, even when instructed not to respond." Id.

Loss of self-control persists even when a threat is prolonged. In one study, young adults experienced reduced self-control by performing poorly on tasks "under both brief and prolonged negative emotional arousal relative to slightly older adults, a pattern not observed in neutral or positive situations." Cohen, supra, at 559. This behavioral tendency among teens and young adults "was paralleled by their decreased activity in cognitive-control circuitry" of the brain. Id. In contrast, heightened activity in the region of the brain that implicates "affective computations and regulation"—or emotion processing—was observed, suggesting that "heightened sensitivity to potential threat" results in "emotional interference and diminished cognitive control" for young adults. Id.

D. Neuroscientific Research Weighs Against Imposing Liability On Young People For Felony Murder

This Court has relied on an increasingly settled body of research finding that "developments in psychology and brain science continue to show fundamental differences between juvenile and adult minds. For example, parts of the brain involved in behavior control continue to mature through late adolescence." *Graham*, 560 U.S. at 68. These scientific studies have helped to "explain salient features of adolescent development, and point[] to the conclusion that children do not think and reason like adults because they cannot." Kenneth J. King, *Waiving Childhood Goodbye: How Juvenile Courts Fail to Protect Children From Unknowing, Unintelligent, and Involuntary Waivers of Miranda Rights*, 2006 WIS. L. REV. 431, 434-35 (2006).

One such difference is shown in the prefrontal cortex, the brain region implicated in complex cognitive behavior, personality expression, decisionmaking and moderating social behavior, which undergoes crucial changes during adolescence. See Sara M. Szczepanski & Robert T. Knight, *Insights into* Human Behavior from Lesions to the Prefrontal Cortex, 83 NEURON 1002, 1002 (2014) (stating that the "play an essential role in the frontal lobes organization and control of goal-directed thought and behavior," and that these functions are collectively referred to as cognitive or executive). See also Erin H. Flynn, Dismantling the Felony-Murder Rule: Juvenile Deterrence and Retribution Post-Roper v. Simmons, 156 U. Pa. L. Rev. 1049, 1070 (2008). As a result of myelination, the process through which nerve fibers become sheathed in myelin (a white fatty substance that facilitates faster, more efficient communication between brain systems), adolescents experience an increase of "white matter" in the prefrontal cortex as they age. Laurence Steinberg, The Science of Adolescent Brain Development and Its Implication for Adolescent Rights and Responsibilities, in Human RIGHTS AND ADOLESCENCE 59, 64 (Jacqueline Bhabha ed., 2014) [hereinafter Steinberg, The Science of Adolescent. See also Terry A. Maroney, The Once and Future Juvenile Brain, in Choosing the Future for AMERICAN JUVENILE JUSTICE 189, 194 (Franklin E. Zimring & David S. Tanenhaus eds., 2014). The creation of more efficient neural connections within the prefrontal cortex is critical for the development of "higher-order cognitive functions [that are] regulated by multiple prefrontal areas working in concert functions such as planning ahead, weighing risks and rewards. and making complicated decisions." Steinberg, The Science of Adolescent, supra, at 64. Compared to the brain of a young teenager, the brain of a young adult displays "a much more extensive network of myelinated cables connecting brain regions," Id. and evidence shows that adolescents become better at completing tasks that require selfregulation and management of processing as they age. Deanna Kuhn, Do Cognitive Changes Accompany Developments in the Adolescent Brain?, 1 PERSPEC. ON PSYCH. Sci. 59, 60-61 (2006) (stating that inhibition comprises two components: "resistance to interfering stimuli and inhibitory control of one's own responses." There is more evidence available on situations when individuals are instructed to inhibit their responses

than when individuals make their own choice to self-inhibit).

Neuroscientists have also observed that different parts of the cortex mature at different rates: myelination and pruning start at the back of the brain and spread toward the front, Maroney, *supra*, at 193, which means that areas involved in more basic functions, such as those involved in processing information from the senses and in controlling movement, develop first, while the parts of the brain responsible for more "top-down" control, such as controlling impulses and planning ahead, are among the last to mature. *The Teen Brain: Still Under Construction*, National Institute of Mental Health (2011),

https://infocenter.nimh.nih.gov/pubstatic/NIH%2011-4929/NIH%2011-4929.pdf. See also Joseph M. Peraino & Patrick J. Fitz-Gerald, Psychological Considerations in Direct Filing, 40 Colo. LAW. 41, 43 (2011). Differences in adolescent and adult perception of the same experiences likely result from the different areas of the brain that each uses to analyze a situation and from the capacity of each to process and reason with information. King, supra, at 435. Developmental psychology has shown that though reasoning improves throughout adolescence and into adulthood, it is always tied to and limited by the adolescent's psychosocial immaturity. See id. at 436. Even if an adolescent has an "adult-like" capacity to make decisions, the adolescent's sense of time, lack of future orientation, pliable emotions, calculus of risk and gain, and vulnerability to pressure will often drive him or her to make very different decisions than an adult would make in a comparable situation. *Id*.

The structural and biochemical changes that occur in adolescent brains are incredibly relevant in considering the foreseeability component of the felony murder rule. Donna M. Bishop & Hillary B. Farber, Joining the Legal Significance of Adolescent Developmental Capacities with the Legal Rights Provided by in Re Gault, 60 RUTGERS L. REV. 125, 152 (2007). Changes in the prefrontal and parietal cortices, the portions of the brain responsible for foresight, planning, strategic thinking, and selfregulation, help account for the apparent gap in understanding and adolescent behavior. Antonio R. Damasio & Steven W. Anderson, The Frontal Lobes, NEUROPSYCHOLOGY, CLINICAL (Kenneth M. Heilman & Edward Valenstein eds., 4th ed. 2003). While juveniles may be able to understand the same information as adults, research indicates that juveniles lack sound judgment and are less able possible negative to account for outcomes. Burton, supra, at 183 (citing Elizabeth S. Scott & Laurence Steinberg, Rethinking Juvenile Justice 36-37 (2008)). See also Elizabeth Cauffman et al., Age Differences in Affective Decision Making as Indexed by Performance on the Iowa Gambling Task, 46 Dev. PSYCH. 193, 204-05 (2010). Accordingly, this Court has noted that adolescents have "[d]ifficulty in weighing long-term consequences" and "a corresponding impulsiveness." Graham, 560 U.S. at 78. See also Scott & Steinberg, supra, at 20. Thus it has been proven that possessing an "adult-like" capacity is not the same as actually possessing an adult capacity adolescents are not simply miniature adults.

In short, scientific evidence shows demonstrable and replicable increases in risk-taking that are highly context-dependent for adolescents. A theory of criminal liability that fails to take that context into afoul of Miller.account runs Individualized consideration of a juvenile's "distinctive (and mental traits and transitory) environmental vulnerabilities," see Miller 567 U.S. at 473, such as peer pressure, social context, and stress, in general, and the setting in which those deficits are exacerbated, is constitutionally required to ensure that a punishment fits both the offense and the offender.

CONCLUSION

For the foregoing reasons, *amici* respectfully request that this Court grant the petition for a *writ of certiorari*.

Respectfully Submitted,

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